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Changes in Poverty Status and Developmental Behaviours:

A Comparison of Immigrant and Non-Immigrant Children in Canada

W-01-1-1E

by
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August 2000

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▬

This report is part of a set of research studies on the National Longitudinal Survey of Children and Youth.
Le présent rapport fait partie d'un ensemble d'études sur l'Enquête longitudinal nationale sur les enfants et les jeunes.

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Abstract

This study examines the effects of movement into or out of poverty, the magnitude of changes in family income, and sources of these income changes. It considers family pathways and developmental behaviours of 4- to 11-year-old children. Analyses were based on a longitudinal sample of 8300 children from cycles 1 and 2 of the National Longitudinal Survey of Children and Youth, covering the period from 1994/95 to 1996/97.

Results indicated that disadvantages for young children in persistent poverty were sustained over time, but that prolonged exposure to poverty did not further escalate children's developmental problems. Simply moving out of poverty did not appear to be sufficient to improve children's developmental outcomes unless it was accompanied by a substantial improvement in living standards. Among non-immigrant families who were poor during both cycles, small gains in absolute income actually elevated children's behavioural problems. Absolute income increases among persistently poor non-immigrant families were related to new employment of the parents and decreases in welfare dependence. However, among persistently poor immigrant families, absolute income increases tended to reduce children's behavioural problems. Finally, results showed rather weak relations between changes in poverty status and parental characteristics. Changes in the economic situations of non-immigrant families were not as important as changes in parental characteristics in influencing children's developmental outcomes, although the differences were often not substantial. Among immigrant families, however, changes in economic situations were often more important than changes in parental characteristics.

Résumé

Cette étude porte sur les effets du mouvement des familles d'une situation de pauvreté à une situation de non-pauvreté, sur l'importance des changements dans le revenu familial et sur les sources de ces changements de revenu. L'étude prend en compte le cheminement de la famille et le développement des enfants âgés de quatre à onze ans. Les analyses ont reposé sur une étude longitudinale effectuée auprès de 8 300 enfants des cycles I et II de l'Enquête longitudinale nationale sur les enfants et les jeunes s'échelonnant de 1994-1995 à 1996-1997.

Les résultats de l'étude indiquent que les désavantages subis par les jeunes enfants qui vivaient en permanence dans une situation de pauvreté persistaient au cours des années. Toutefois, le fait d'être exposé à la pauvreté pendant une période prolongée ne contribuait pas à accroître les problèmes de développement chez les enfants. Selon l'étude, le simple fait de ne plus vivre dans la pauvreté ne constituait pas un facteur suffisant pour améliorer le développement des enfants sauf si ce changement s'accompagnait d'une importante amélioration du niveau de vie. Selon l'étude, il apparaît que dans les familles non immigrantes qui étaient pauvres durant les deux cycles, l'obtention de petits gains de revenu a, en fait, accru les problèmes de comportements chez les enfants. C'est grâce à l'obtention d'un nouvel emploi et à la diminution de la dépendance à l'endroit de l'aide sociale que l'on constate une augmentation importante du revenu chez les familles non immigrantes qui vivaient en permanence dans la pauvreté. Soulignons toutefois que l'on a constaté chez les familles immigrantes qui vivaient en permanence dans la pauvreté qu'une augmentation importante du revenu avait pour effet de réduire les problèmes de comportement chez les enfants. Enfin, les résultats de l'étude ont plutôt démontré l'existence d'une faible relation entre les changements au chapitre de la situation de pauvreté et les caractéristiques parentales. Les changements dans la situation économique des familles non immigrantes n'exerçaient pas une influence aussi importante sur les comportements des enfants que les changements des caractéristiques parentales, même si ces différences n'étaient pas souvent notables. Néanmoins, chez les familles immigrantes, les changements de la situation économique étaient parfois plus importants que ceux des caractéristiques parentales.

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Foreword

The National Longitudinal Survey of Children and Youth (NLSCY) is a unique Canadian Survey designed to follow a representative sample of children from birth to early adulthood. It is conducted in partnership by Human Resources Development Canada (HRDC) and Statistics Canada. Statistics Canada is responsible for data collection, while HRDC, the major funder, directs and disseminates research. Data collection began in 1994 and continues at two-year intervals.

The survey for the first time provides a single source of data for the examination of child development in context, including the diverse life paths of normal development. The survey and the research program were developed to support evidence-based policy, using a human development view of the early decades of life. This research paper is part of an on-going series of papers emanating from a program of research that examines NLSCY data collected in the first two cycles (1994, 1996) of the survey.

1. Introduction

The elimination of child poverty is a priority for government at all levels. Canada's governmental social transfer system has helped to mitigate material deprivation for poor families (Campaign 2000 1997; Zyblock 1996). Research demonstrating the effects of poverty on child development has contributed to the definition of poverty as a national priority. Research has consistently demonstrated that poverty is a risk factor that threatens the health status, cognitive abilities, behaviours, and educational attainment of children (Aber et al. 1997; Lipman and Offord 1995). However, the reasons why poverty affects some, but not all poor children remain unclear. Understanding protective factors that mitigate the risk induced by poverty can have significant implications for policy and for health promotion.

Developmental psychologists examining resilience and vulnerability have identified parental characteristics, negative events, as well as personal and familial resources as factors that mediate the effects of poverty (Brooks-Gunn 1995; Elder, Nguyen and Caspi 1985; Huston 1991; McLoyd 1989). Social-economic studies attempt to explain differential effects of poverty by looking at the persistence and severity of poverty, sources of income, allocation of financial and non-monetary resources within the family, and contextual factors such as neighbourhood characteristics, race, ethnicity, and immigrant status (Blau 1999; Guo 1998; Lefebvre and Merrigan 1998; Mayer 1997; McLeod and Shanahan 1996). In order to develop effective policy, it will be necessary to adopt a more contextual approach to research, an approach sensitive on the one hand to developmental issues, and, on the other, to protective resources, as well as to changes in family poverty status and the sources of the changes.

Using data from both cycle 1 and cycle 2 of the National Longitudinal Survey of Children and Youth, this study draws from both developmental and social-economic approaches to examine the effects of changes in poverty status on children's behavioural outcomes. This study will compare changes in parenting behaviours, family function, parental mental health, and children's developmental behaviours among families in four different situations: a. Families poor over both cycles, b. Families which change from poor at time 1 to non-poor at time 2, c. Families which change from non-poor to poor, and d. Families which are non-poor at both cycles. This study

will further examine the extent to which the effects of changes in poverty status depend on the amount and sources of family income change.

This study also compares the effects of change in poverty status in immigrant and non-immigrant families. Previous analyses using NLSCY data have indicated that immigrant children have better behavioural outcomes than their Canadian-born peers, even though they are more likely to be poor, a finding suggesting that poverty among new immigrants may have a different meaning than it has for native-born families (Beiser, Hou, Hyman and Tousignant 1998, 2000). Examination of the manner in which poverty affects developmental outcomes in children of immigrant and native-born families will facilitate understanding of the role of contextual variations in explaining the impact of poverty, as well as the personal and familial resources which protect children against the adverse effects of poverty

2. Background, literature review, and study objectives

2.1 Child poverty in Canada

In 1998, almost 1.3 million or 18.8% of children in Canada under 18 years of age were living in poor families[1] (Statistics Canada, 2000). The rate of children living in poverty fluctuated during the past two decades. The rate was 21.9% in 1973. By 1989, it had been reduced to 15.2%. Then it climbed once again to 21.3% by 1996 before turning downward in 1997 (Statistics Canada, 2000; Zyblock 1996).

Several forces influence child poverty trends in Canada. Economic growth or recession is a driving force affecting fluctuations in the rates of poverty. Government transfers and income taxes also influence changes in poverty rates. In addition, poor families tend to be families headed by young parents or lone mothers (Hatfield 1996; Sharif and Phipps 1994). Demographic changes, including decreasing family size, increasing average age and educational level of parents, and growing number of earners per family, tended to push the overall poverty rate downward (Dooley 1994; Picot and Myles 1996). However, increases in the proportion of children living in lone-parent families offset the benefits of economic growth and demographic changes (Dooley 1994; Zyblock 1996).

At the individual level, changes in family composition tended to have a stronger impact on transitions into and out of lower-income status than did changes in family incomes due to labour market events (Statistics Canada 1998). However, income changes were more frequently due to transitions in parental labour force activities than to family compositional changes. An empirical study found that between 1993 and 1994, for the population of children as a whole, both factors contributed almost equally to the shift of children across the low-income line (Picot, Zyblock and Pyper 1999).

The increase in dependency on government transfers as a source of income for poor families has been dramatic (Zyblock 1996). Since the 1970s, government transfers have replaced market earning as the major income source of poor families (Picot and Myles 1996). For instance, the

[1] Based on Statistics Canada's low income cutoffs (LICOs, 1992 base) for before-tax income. The number was 0.9 million when LICOs were calculated using after-tax income. The 1998 rate was 13.8% based on after tax income (Statistics Canada, 2000).

proportion of income from social transfers increased from 59.7% in 1975 to 71.3% in 1992 for poor, lone parent families, and from 26.7% to 42.9% for poor two parent families (Zyblock 1996).

2.2 Poverty and child development

A substantial body of literature documents the detrimental effects of poverty on children's physical and mental health, academic achievement, and oth elopmental outcomes. Poverty compromises access to material necessities, as well as the fulfilment of basic developmental needs such as safety and stability. Poor parents often have difficulty supplying their children with the best foods, with adequate clothing and housing, with appropriate child-care alternatives when parents are out working, with good education, with stimulating experiences such as books, toys, and outings, and with safe and pleasant residential neighbourhoods (Schor and Menaghan 1995). Poverty also brings with it a high risk of exposure to harmful environmental conditions and stressful events (McLeod and Edwards 1995). Children in poor families often experience high residential mobility; frequent relocations of schools disturb children's academic routines, while the loss of familiar neighbourhoods may give rise to disturbances in peer relationships (McLoyd and Wilson 1991).

Empirical studies suggest, however, that, net of the effect of child and parental characteristics, poverty exerts a relatively small impact on children's development (Duncan et al. 1994; Gotlib and Avison 1993; Smith et al. 1997). This may be accounted for, to a certain degree by government interventions. In Canada and the United States, most poor families can meet basic material needs for food, housing, and health care through governmental transfers and programs, although homeless and hunger still affect some Canadian children. Nevertheless, relatively few poor children suffer the extremes of material deprivation which cause physical or social disadvantages (Canadian Council on Social Development 2000; Mayer 1997).

Although poverty is a risk factor for children's health and well-being, not all poor children succumb to mental illness and developmental problems. Researchers have developed various frameworks to examine why some children in poor families are hit harder than others. In particular, developmental psychologists are interested in factors that moderate or mediate the

impact of poverty. Sociologists and economists pay more attention to variations in the chronicity and severity of poverty, and to contextual influences on children in poverty.

Some developmental theorists focus on the functions of child and familial resources in mitigating the impact of poverty (Brooks-Gunn and Furstenberg 1987). Social support, coping behaviour, the socio-economic status of parents, family structure -- all of these may be considered important resources that help to explain resilience in the face of adverse circumstance (Brooks-Gunn et al. 1995). Others propose that poverty exerts its effects through the presence of multiple associated risk factors, such as stress, severe marital discord, and poor maternal mental health (Biederman et al. 1995; Rutter 1990; Sameroff and Seifer 1995). Recent developmental studies have tended to employ a process model according to which poverty initially affects parenting behaviours, parental mental health, and family function, and, through these mechanisms, affects children (Elder, Nguyen and Caspi 1985; Huston 1991).

Parenting has been identified as an important link between poverty and children's developmental behaviours (Elder, Nguyen and Caspi 1985; Huston 1991; Lempers, Clark-Lempers and Simons 1989). Halpern (1990) has suggested that poverty has an "organizing influence" on child-rearing by creating personal, situational and systemic obstacles that undermine attentive and nurturant parenting behaviours (p.8). Empirical studies have shown that impaired parenting can explain a large proportion of the total correlation between economic hardship and children's mental health (Conger et al. 1992; Dodge, Pettit and Bates 1994; McLoyd 1995).

Parental psychopathology is another important causal pathway linking socio-economic disadvantage to children's mental health. Through a combination of financial strain, exposure to stressful life events, scarce social resources, and weak social supports, poverty jeopardizes the mental health of adults (Adler et al. 1994). In turn, parental psychopathology adversely affects the mental health of children (Downey and Coyne 1990; Gotlib and Lee 1990; Schor and Menaghan 1995).

A theoretical framework linking initial exposure to economic stress to consequent parental distress, then to disturbances in parenting and ultimately to deleterious consequences for children's mental health has guided a number of recent investigations (Downey and Coyne 1990; Goodman and Brumley 1990; Conger et al. 1992; McLoyd et al. 1994). Several studies

demonstrated a connection between maternal stress and maternal distress leading, in turn, to poor parental discipline practices and an increased risk of children's antisocial behaviour, compromised school achievement, and poor peer relationships (Conger, Patterson and Ge 1995; Snyder 1991).

In addition to ineffective parenting and parental psychopathology, intra-familial hostility might be another mediator linking economic adversity and children's mental health. Empirical studies demonstrate that socio-economic disadvantage increases marital dissatisfaction, and raises the levels of irritability, conflict and aggression within families (Robinson and Jacobson 1987; Voydanoff 1990; Lime and Liem 1990). A number of investigations of poverty and children's mental health have utilized family functioning as a mediating variable. Using this paradigm, empirical studies have demonstrated significant associations between poor family functioning and children's mental disorder (Gotlib and Avison 1993; Amato and Keith 1991; Conger et al. 1994; Grych and Fincham, 1990).

Social-economic studies highlight the importance of distinguishing the effects of chronic and transient poverty. According to one study (Duncan et al. 1994), poor children tended to have lower IQs and more internalizing difficulties than never-poor children; however, persistent poverty had a stronger negative effect than occasional poverty. McLeod and Shanahan (1996) observed more detrimental mental health outcomes among children with histories of persistent poverty than among transiently poor or non-poor children.

Social-economic studies have suggested that the source of family income may affect child outcomes. While employment income tends to generate positive impacts, welfare participation appears to have strong negative effects on children (Hill and O'Neil 1994). However, the effect of welfare utilization may simply reflect the severity of poverty: income effects may be strongest for the very poor (Lefebvre and Merrigan 1998; Mayer 1997). Varying impacts of different sources of income may also be related to what some economic research has attempted to estimate as the "true" effect of income, given that some sources of income may be more strongly related to parental traits that both affect the parents' income and children's outcomes (Blau 1999; Mayer 1997).

In summary, many psychological studies focus on pathways, such as parenting, parental mental health, and family function, through which poverty and children's development are linked. On the other hand, social-economic studies emphasize the nature of poverty and contextual determinants of children's responses to poverty. This study will integrate both approaches by examining the effects of movement into or out of poverty, the amount of change in family income, and sources of such changes on family pathways and children's developmental behaviours.

2.3 Differential effects of poverty by immigrant status

Studies of the effects of poverty on immigrant and receiving-society children suggest a paradox. Although immigrant families are typically more poor than their receiving country counterparts (National Council of Welfare 1998; US Department of Health and Human Services 1998), children in immigrant families are, on the whole, at least as healthy as majority culture children, and often out-perform them in school (Beiser et al. 1995; Hernandez 1999; Klimidis et al. 1994; Chang et al. 1995; Zhou 1997). Furthermore, evidence from many U.S. studies, and a previous study using cycle 1 data of the NLSCY (National Longitudinal Study of Children and Youth), suggest that relative health status tends to decrease from foreign-born children, to native-born children of immigrant parents, to children of non-immigrant parents, even though poverty rates also decrease in the same direction (Hernandez 1999; Hernandez and Charney 1998; Beiser, Hou, Hyman and Tousignant 2000). These results suggest the possibility that immigrant status protects children, at least temporarily, from many of the deleterious health consequences of poverty (Harris 1999; US Department of Health and Human Services 1998).

In previous studies using cycle 1 NLSCY data, our research group found that poverty had different concomitants in immigrant and receiving society families. Among poor majority culture families, there were higher rates of parental depression, single-parent status, and hostile parenting than among either non-poor families in the general population or among immigrant families, whether poor or not. Poor immigrant children may have a mental health advantage over their receiving society counterparts because they have a more supportive family environment (Beiser, Hou, Hyman and Tousignant 1998, 2000). Some US studies found that poverty in immigrant families was not necessarily associated with single parent status, a large number of

siblings, and low rates of father's labour force participation that were repeatedly found in poor non-immigrant families (US Department of Health and Human Services 1998)

Immigrant poverty is primarily due to unemployment and underemployment in the first few years of resettlement. After an initial period of high unemployment, immigrants in Canada eventually achieve higher rates of labor force participation and higher employment income than native-borns (Beiser et al. 1997; deVoretz 1995). Thus, poverty may be a transient feature of resettlement. For many receiving country families, however, poverty is probably not part of an unfolding process, but the end stage of a cycle of disadvantage. Among the majority culture, the concomitants of poverty include not only financial burden, but, in addition, social isolation and compromised self-esteem (Beiser, Johnson and Turner 1993).

2.4 Study objectives and hypotheses

Using the cycle 1 and cycle 2 NLSCY data, this study has the following objectives and hypotheses:

A. To compare the changes in parenting behaviours, family function, parental mental health, and children's developmental behaviours in four types of families: in poverty at both cycles, changed from poor to non-poor, from non-poor to poor, and not in poverty during both cycles. We hypothesize that the persistently poor will have the worst outcomes in family environments and children's developmental behaviours, followed by those who recently became poor.

B. To examine the effects of the amount and sources of changes in family income on children's developmental behaviours. We hypothesize that the amount of income change may moderate the effects of changes in poverty status: the larger the increase in income associated with movement out of poverty, the better children's developmental outcomes; the larger the decrease in the amount of income associated with movement into poverty, the worse the developmental outcomes. Furthermore, the effects of income changes may not be as profound as those of changes in family structure and employment status -- the two primary sources of income changes.

C. To examine how family environment variables such as parenting, family functioning, and parental depression mediate the effects of change in poverty status on children's developmental outcomes. We hypothesize that change in poverty status affects children's developmental outcomes at lease partially through family environment variables. Thus, the direct effects of change in poverty status will be significantly reduced once controlling for family environment variables.

D. To compare the effects of changes in poverty status on children's developmental outcomes among immigrant and receiving society families. Previous studies suggest that many immigrant families experience temporary poverty which can be gradually overcome as they adjust to the labour market in the receiving country. Furthermore, poverty affects immigrant children primarily through material deprivation rather than disadvantages in family environment that are often associated with poverty in non-immigrant families. Based on these findings, we hypothesize that immigrant families are more likely to move out of poverty, mainly through employment and increases in market earning, than are receiving society families. We also hypothesize that immigrant children will experience greater improvement in developmental behaviours once their families move out of poverty.

3. Data and methods

3.1 Sample

Data for this study were derived from cycles 1 and 2 of the NLSCY, a nationwide study of approximately 23,000 children ranging from newborn to 11 years of age at the time of the cycle 1 survey. The matched longitudinal component contained a total of 14,102 children. This study will focus on a sub-sample of 8,284 children who were between 4 and 11-years old at the time of the cycle 1 survey, since behavioural measures for this age group were different from those for younger children in the cycle 1 survey. The selected sub-sample was further divided into age groups of 4- to 9-year-olds and 10- to 11-year-olds for separate analysis because measures of developmental behaviours and parenting differed for these two age groups in the cycle 2 survey. The younger age group, consisting of 6,218 children, had parent-reported measures of developmental behaviours and parenting at the time of both cycles. The older age group, consisting of 2,069 children, had self-reported measures of developmental behaviours and parenting at the time of both cycles.

The original NLSCY sampling strategy relied on household selection through a multi-stage stratified cluster probability sampling procedure. A weighting procedure was designed by Statistics Canada to compensate for the differential representation of population groups. In performing multivariate analysis, standard statistical packages can use the weights reflecting the survey sample design and produce correct estimates. However, since the average of the original weight was more than 350, the calculated variances are almost meaningless. To solve this problem, Statistics Canada recommends rescaling the weights on the records so that the average weight is 1 (HRDC 1996). This procedure was used in this study.

For the 4- to 9-year-old age group, children of immigrant families were identified for comparison against the remaining children who constituted the national comparison sample. The children of immigrant families consisted of those who entered Canada as immigrants and those born in Canada into a family in which at least one of the parents was an immigrant. There were 1336 (21.5%) children of immigrant families in the younger age group. Among them, 260 (88 before weighting) were born in foreign countries. We were unable to conduct separate analyses for foreign-born children and Canadian-born children of immigrant parents, since the small sample

size was not large enough to meet Statistics Canada's guidelines for reliable estimation.[2] In the 10- to 11-year-old group, there were 426 (220 before weighting) children of immigrant families. For this age group, we were unable to conduct separate analyses for immigrant and non-immigrant children, as the sample size is too small to warrant further break-downs of changes in poverty status and other major explanatory variables.

3.2 Selection and operational definitions of variables

3.2.1 Measures of children's developmental behaviours

Five measures of developmental behaviours constituted the study outcomes: (1) Hyperactivity-inattention, (2) Prosocial behaviours, (3) Emotional disorder, (4) Conduct disorder, and (5) Indirect aggression. These scales showed high reliability, with the Cronbach alpha ranging from .77 to .84. The NLSCY also contains a measure of property offences. However, this measure has low reliability (Cronbach alpha, .64). Furthermore, for the older group, questions regarding property offences were asked rather differently in the cycle 2 survey and thus, should not be compared over time.

For each measure of developmental behaviours, respondents were asked to answer several questions, endorsing each as either "never or not true," "sometimes or somewhat true," or "often or very true." Although the same questions were used for the 4- to 9-year-old group and the 10- to 11-year-old group, the person most knowledgeable (PMK) about the child answered for the younger groups, while the older children completed questionaires themselves.

Hyperactivity-inattention was measured by 8 items: "can't sit still, is restless or hyperactive," "is distractible, has trouble sticking to any activity," "fidgets," "can't concentrate, can't pay attention for long," "is impulsive, acts without thinking," "has difficulty awaiting turn in games or

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[2] According to Statistics Canada's guidelines for statistical analysis and release, acceptable estimates should have a sample size of 30 or more, and a coefficient of variation less than 16.5%. Although the sample size of foreign-born children was larger than 30, and its coefficient of variation was about 7%, the breakdowns by changes in poverty status, welfare dependence, or employment status contained sample sizes less than 30. For instance, only 12 foreign-born children were in the persistently poor category; the corresponding coefficient of variation was about 15.5%. The further breakdowns of changes in poverty status by welfare dependence or employment status would produce even smaller cells, and larger coefficients of variations. Even when foreign-born children and Canadian-born children of immigrant parents were combined, some cells in the two-way cross-tabulations between changes in poverty status and other major explanatory variables were smaller than 30, or their coefficients of variation were larger than 16.5%. The estimates based on unacceptable sample sizes or coefficients of variation are marked in the results section.

groups," "can't settle to anything for more than a few moments," "is attentive." The score of the scale ranges from 0 to 16.

The prosocial behaviours scale contained 10 items: "sympathy to someone who has made a mistake," "will try to help someone who has been hurt," "volunteers to help clear a mess someone else has made," "if there is a quarrel or dispute, will try to stop it," "offers to help other children who are having difficulty with a task," "comforts a child who is crying or upset," "spontaneously helps to pick up objects which another child has dropped," "will invite bystanders to join in a game," "helps other children who are feeling sick," "takes the opportunity to praise the work of less able children." The scale score ranges from 0 to 20.

Emotional disorder, characterized by feelings of anxiety and/or depression, was measured with an eight item scale. Sample items included: "seems to be unhappy, sad, or depressed," "not as happy as other children," "too fearful or anxious," "worried," "cries a lot," and "appears miserable, unhappy, tearful, or distressed." The score of the scale ranges from 0 to 16, a higher score indicating a higher level of emotional disorder.

Conduct disorder, characterized by aggression, either physical or indirect, or a violation of social norms was assessed through a six item scale: "gets into many fights," "physically attacks people," "threatens people," and "cruel, bullies or mean to others." The score of the scale ranges from 0 to 12.

Indirect aggression included five questions about the behaviours of a child when he/she is mad at someone: "tries to get others to dislike that person," "becomes friends with another as revenge," "says bad things behind the other's back," "says to others: let's not be with him/her," "tells the other one's secrets to a third person." The scale score ranges from 0 to 10.

3.2.2 Poverty and changes in poverty status

Poverty status in this study is a relative indicator of low income based on income adequacy, a five-category measure used by Statistics Canada's General Social Survey, and National Population Health Survey. "Poor" families were defined as those belonging to the lowest or lower middle income adequacy category. The lowest income category represented households with incomes less than 10,000 and household size was 1-4 persons; or it represented households

with incomes less than 15,000 and household size was 5 or more persons. Lower middle income adequacy referred to situations where household income was 10,000-14,999 and household size was 1-2 persons; or household income was 10,000-19,999 and household size was 3-4 persons; or household income was 15,000-29,999 and household size was 5 or more persons (HRDC 1996: Appendix 4). This low-income definition tends to classify more families into the category of "poor" than a more conventional definition in which poor families are those whose adjusted income falls below Statistics Canada's low income cutoffs (LICOs). Among all the children in the matched longitudinal sample, about 14.2% would be classified as living in low income families at the cycle 1 survey based on LICOs, however, the number was 18.9% when based on the measure of income inadequacy. About 97.4% of families that were classified as low-income based on LICOs were also classified as low-income based on the measure of income inadequacy. Since the cycle two NLSCY data on LICOs were not available at the time of our analysis,[3] we could only use the measure of income inadequacy for the cross-time comparison.

Changes in poverty status include relative change and absolute change based on household income measured at both cycle 1 and cycle 2 of the NLSCY. Relative change classifies families into four categories: *Persistently Poor* (poor at both cycles), *Newly Poor* (from non-poor at cycle 1 to poor at cycle 2), *Newly Non-poor* (from poor to non-poor), and *Non-poor* (non-poor at both cycles). Absolute change is the difference between cycle 1 and cycle 2 logarithmic average household income. Average household income is total household income (AINHQ03 in the secondary file) divided by number of persons in the household. The logarithmic transformation of average household income is used to adjust for possible non-linearity. The difference of logarithmic incomes at cycle 2 and cycle 1 is equivalent to the logarithmic transformation of the ratio of cycle 2 income to cycle 1 income.

3.2.3 Sources of changes in poverty status

Changes in family income may derive from a diversity of income sources. Government welfare is an important income source to the very poor who are often unable to find gainful employment or even to participate in the labour market. Dependence on welfare is also an indicator of the intensity of poverty. Since previous studies found different effects for market income versus

[3] The LICO data were made available after the present report had been completed.

welfare payment, this study creates a variable to represent changes in the dependence on welfare. Based on the questions about main source of household income, this variable is coded as: Persistent Dependence – welfare payments are the main source of income at both cycles; Increased Dependence – welfare payments become the main source of income in cycle 2; Decreased Dependence – welfare payments are no longer the main source of income at cycle 2; and No Dependence- welfare payments are not the main income source at both cycles.

Changes in employment status of parents lead to increases or decreases in family income. Possible changes will be reflected by a four category variable coded as: Move Into Employment – one or both parents move from unemployment, or not in labour force at cycle 1 into employment at cycle 2; Move Into Unemployment – one or both parents become unemployed; Stable Employment; and No Parent Working at Both cycles.

Family structure is not a direct measure of family income, and its effect on children's developmental outcome is also far beyond economic. However, preliminary analyses of both cycle 1 and cycle 2 NLSCY data suggested that family formation and breakdown was the major factor contributing to the movement of families with children into or out of a low income situation between 1994/95 and 1996/97 (Statistics Canada 1998). In this study, we create a four-category variable to capture the change in family structure: Family Formation -- single, divorced, or widowed parents at the time of the cycle 1 survey were married at cycle 2; Family Breakdown – married parents at cycle 1 were divorced or widowed at cycle 2; Both Parents at Both Cycles; and Single Parents at Both Cycles. Due to the small sample size for immigrant children in the age group of 4- to 9-year-olds, we combined the categories of Family Formation and Both Parents at Both Cycles in all analyses on immigrant children.

3.2.4 Family factors

The NLSCY measure of parenting behaviours relies on the Parenting Practices Scale developed by Strayhorn and Weidman (1988), with additional questions developed by Dr. M. Boyle at Chedoke-McMaster Hospital. Previous NLSCY analyses of this inventory of items have identified three factors, the first reflecting positive, and the second ineffective interactions; the third factor was a measure of consistency of parenting practices (Human Resources Development Canada, 1996).

The measure of parental depression draws upon the CES-D, a widely-used survey instrument originally developed at the US National Institute of Mental Health (Radloff, 1977). To ease respondent burden, the NLSCY employed a 12 question, abbreviated version of the CES-D.

Family functioning was measured using the Family Assessment Device, a 12 item questionnaire developed by the Chedoke-McMaster Hospital group (Epstein, Baldwin and Bishop, 1983). The scale assesses communication, problem solving, affective responsiveness (i.e., readiness of family members to show feelings), affective involvement (i.e., readiness of family members to help and support each other), and family roles. In the analysis, this variable was coded in a way that a higher score reflects a higher level of family dysfunction

3.2.5 Control variables

Control variables include the age and education of the PMK, as well as age and gender of the child. We also create a dummy variable, non-white (1=non-white, 0=white), as a crude measure to control for racial/ethnic heterogeneity in the population, especially among immigrant families. This variable is not included in the multivariate regression models for non-immigrant children in the 4- to 9-year-old age group, since this group contains only about 3.2% non-white children. Among immigrant children in the same age group, 41.1% are non-white. Among children in the age group of 10- to 11-year-olds, for which we combined immigrant and non-immigrant children in multivariate analyses, about 9.8% are non-white. For immigrant children, we also included country of birth (foreign-born=1, Canadian born=0) and parent's length of immigration as control variables.

3.3 Statistical analyses

This study will take advantage of the longitudinal design of the NLSCY. Cross-sectional studies are subject to the ambiguity of causal order: for example, does poverty impair parental mental health, or does parental mental illness reduce family earnings? Analyses based on cross-sectional data also are subject to specification bias due to the omission of unmeasured factors, e.g., are poverty and impaired parenting behaviours both influenced by some unmeasured characteristics of parents, such as social adjustment, skills, enthusiasm, and dependability, that will also affect children's outcomes? Analyses of changes in economic status, mediating factors, and children's behavioural problems mitigate problems of causal ordering and specification bias.

3.3.1 Descriptive statistics

This study first described movements into and out of poverty, changes in welfare dependence, dynamics of employment, and changes in family structure, parenting, parental depression, and family dysfunction. This study further examined the bivariate associations of changes in poverty status with changes in family environment and children's developmental behaviours.

3.3.2 Multivariate analyses

The conditional change or static-score model (Finkel 1995) was used to examine the effect of selected mental health determinants on changes in children's developmental outcomes. The basic form of this model is:

$$Y_2 = \beta_0 + \beta_1 Y_1 + \beta_2 \Delta X + \varepsilon \qquad (1)$$

In this model, Y_2 represents time 2 developmental behaviours, and Y_1, time 1 developmental behaviours. Inclusion of the prior level of the dependent variable can take into account the possible negative correlation between initial scores on a variable and subsequent change. The prior level of the dependent variable in the model can also serve to control, at least partially for omitted variables that influence the change in the dependent variable (Finkel 1995).

In this basic model, β_1 indicates the stability of children's developmental behaviours. ΔX represents the change of the focal independent variable between time 1 and 2. Its regression coefficient, β_2, indicates the causal effect of ΔX on the change of Y, controlling for Y's prior levels. ε is the error term.

Using the conditional change panel model, we created four hierarchical regression equations. The first equation included the initial score of the developmental behaviour, as well as all of the selected control variables. The second equation added four groups of variables representing changes in family economic situations. The first group included three dummy variables, constructed from the four-category variable for changes in poverty status, with the non-poor at both cycles serving as the reference group. The second group contained the conditional interaction terms between absolute income change with each of the three dummy variables representing changes in poverty status. These interaction terms can show the conditional effects

of the amount of change in family income. The third group consisted of three dummy variables derived from the four categories of changes in welfare dependence, with no dependence at both cycles serving as the reference. The fourth group consisted of three dummy variables derived from changes in employment status, with stable employment as the reference.

The third equation added dummy variables based on changes in family structure, using two parents at both cycles as the reference. The fourth equation added changes in parenting, parental depression, and family function.

Changes in R^2 across models indicate the independent explanatory power of the added variables, and thus allow comparison of the relative importance of changes in economic situation, family structure, and parental characteristics in influencing children's developmental behaviours. The differences between the second and the following equations in the coefficients for the variables representing changes in poverty status reflect the indirect effects of poverty changes through the added variables.

4. Results

4.1 Younger children – 4- to 9-year-olds

4.1.1 Economic changes in the family

During the period from 1994/95 to 1996/97, both non-immigrant and immigrant families with children 4- to 9-years-old improved, on average, their economic status, a trend consistent with the expanding national economy (Table 1). However, immigrant families still made up more of the proportion of families in poverty. The proportion of immigrant families that moved out of poverty was relatively smaller than that of non-immigrant families. About 14.5% of immigrant families were poor at the time of both cycles of the survey, compared with 10.1% of non-immigrant families. About 72.0% of immigrant families were not poor at both cycles, compared with 77.5% of non-immigrant families. The differences between immigrant and non-immigrant families were statistically significant ($p<.000$).

Table 1 **Economic Changes in the Family, 4-9 Years Old**

Variables	Categories	Non-immigrant Children		Immigrant Children	
		Frequency	Percent	Frequency	Percent
Poverty	Non-poor	3784	77.5	962	72.0
	Newly Poor	257	5.3	77	5.7
	Newly Non-poor	349	7.2	103	7.7
	Persistently Poor	492	10.1	194	14.5
Welfare Dependence	Persistent Dependence	139	2.9	53	4.0
	Decreased Dependence	287	5.9	51	3.8
	Increased Dependence	200	4.1	73	5.5
	No Dependence	4256	87.2	1159	86.7
Employment	No Parents Working	328	6.7	83	6.2
	Stable Employment	2920	59.8	792	59.3
	New Unemployment	547	11.2	186	13.9
	New Employment	1088	22.3	275	20.6

While the proportion of non-immigrant families depending on social welfare as the major source of family income decreased during this period, more immigrant families became dependent on social welfare. For about 7.8% of immigrant families, social welfare was the major income source in 1994/95, compared with 9.5% two years later. The corresponding percentage decreased from 8.8% to 7.0% for non-immigrant families. About 4.0% of immigrant families

persistently depended on social welfare, compared with 2.9% of non-immigrant families. Again, these differences were statistically significant ($p<.000$).

More families, regardless of immigrant status, entered into the labour market in a growing economy. However, the improvement in employment rate was stronger among non-immigrant families. Furthermore, the labour market was more volatile for immigrants than for non-immigrants. Although adults in immigrant families were less likely to have no jobs at both cycles, they also had a smaller proportion of stable employment, and a higher proportion of new unemployment than non-immigrant adults.

Changes in family poverty status were closely related to changes in welfare dependence, although the relation was stronger among non-immigrant families (Cramer's V (CV)= .44, contingency coefficient (C)=.60, $p<.000$)[4] than among immigrant families (CV= .34; C=.51; $p<.000$). Among the persistently poor, non-immigrant families were far more likely to depend on welfare than immigrant families. Among persistently poor immigrant families, 20.6%(u)[5] persistently depended on social welfare, 11.3%(u) decreased their welfare dependence, 21.1%(u) increased their welfare, and 46.9% never depended on welfare in the two-year period. The corresponding percentages were 47.3%, 13.0%, 10.2%, 29.5%, respectively for persistently poor non-immigrant families.

Among those who recently became poor, non-immigrant families were again more likely to persistently depend on welfare or become dependent on welfare than immigrant families. Among newly poor immigrant families, 1.3%(u) persistently depended on social welfare, 11.7%(u) decreased their welfare dependence, 16.9%(u) increased their welfare, and 70.1% never depended on welfare. The corresponding percentages for newly poor non-immigrant families were 11.7%, 6.6%, 18.7%, and 63.0%, respectively. Among the newly non-poor, 73.1% of immigrant families never depended on welfare, compared with 69.9% in non-immigrant families.

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[4] Cramer's V (CV) is an index of strength of relationship for use with larger than 2 by 2 tables. This index is free of the dependence on table size, it varies between 0 and 1. Contingency coefficient (C) is a widely used index of relationship where larger than 2 by 2 tables are involved. Values of C can never be greater than 1, its maximum value is strongly influenced by the size of the chi-square table. In a 4 by 4 table, as in our analysis, the maximum value of C is .866.

[5] Throughout the results section, the marker [(u)] was used to flag the estimates that were based on an unweighted sample size smaller than 30, or/and with a coefficient of variation larger than 16.5%.

The above comparisons suggested that the larger proportion of low-income among immigrant families was the primary reason contributing to their slightly higher overall dependence on social welfare than non-immigrant families. Within each income level, immigrant families are less likely to depend on welfare than non-immigrant families.

Changes in poverty status were also related to changes in employment status of parents. Again, this association was stronger among non-immigrant families (CV = .38, C= .55, p<.000) than immigrant families (CV=.30, C=.46, p<.000). Their major difference was that persistent poverty was more strongly associated with persistent unemployment among non-immigrant families than among immigrant families. Among the persistently poor, 49.1% of non-immigrant families had no parent working in the two-year period, compared with 25.7%(u) of immigrant families. Furthermore, moving out of poverty was more strongly associated with new employment of parents among non-immigrant families than among immigrant families.

4.1.2 Changes in poverty status and changes in family environment

Immigrant children experienced more negative changes in family environment than non-immigrant children. The results in Table 2 revealed that, although immigrant children were less likely to live in single-parent families at both cycles than were non-immigrant children, the differences decreased from 10.8% vs 17.1% at the first cycle to 15.1% vs 17.1% at the second cycle. The rate of increase in the proportion of single-parent families was much higher among immigrants. Furthermore, parental depression and family dysfunction intensified among immigrant families, but diminished among non-immigrant families. Meanwhile, among both immigrant and non-immigrant families, positive and ineffective parenting decreased, while consistent parenting increased.

Table 2: **Changes in the Family Environment, 4-9 Years Old**

	Non-immigrant Children		Immigrant Children	
Categories	1994/95	1996/97	1994/95	1996/97
% of Single Parent	17.1%	17.6%*	10.8%	15.1%*
Positive Parenting	13.135	12.496*	12.772	12.252*
Ineffective Parenting	9.180	8.971*	8.830	8.456*
Consistent Parenting	15.025	15.218*	14.529	14.887*
Parental Depression	4.866	4.270*	4.970	5.039*
Family Dysfunction	7.886	7.812*	8.873	9.153*

* Significantly different between cycle one and cycle two at p<.001.

Changes in family structure were moderately related to changes in poverty status among immigrant families (CV=.31; C=.40, p<.000) and among non-immigrant families (CV = .35, C= .45, p<.000). Among persistently poor families, about 34.5%(u) were headed by a single parent at both cycles of the survey among immigrants, compared with 54.2% among non-immigrants. Among persistently non-poor families, only 2.8%(u) were headed by a single parent at both cycles among immigrants, compared with 6.5% among non-immigrants.

Changes in positive parenting, ineffective parenting, parental depression, and family dysfunction were also associated with changes in poverty status among immigrant families (Table 3). However, the directions of the associations were different from what we would expect. Newly non-poor families had the largest decrease in positive parenting, and largest increases in ineffective parenting, parental depression, and family dysfunction. Persistently poor families had the largest decreases in ineffective parenting and family dysfunction. Newly poor immigrant families had the largest decrease in parental depression.

Table 3 **Changes in Poverty Status and Changes in Parental Characteristics, 4-9 Years Old**

	Positive Parenting (T2-T1)	Ineffective Parenting (T2-T1)	Consistent Parenting (T2-T1)	Parental Depression (T2-T1)	Family Dysfunction (T2-T1)
Non-Immigrant Families					
1. Non-poor	-.673	-.177	.158	-.607	.020
2. Newly Poor	-.829	-.338	-.192	.040	-.547
3. Newly Non-poor	-.610	-.068	.421	-1.385	-.713
4. Persistently Poor	-.295	-.489	.519	-.278	-.118
ANOVA, P-Value	.038	.174	.018	.017	.059
Significant Contrasts*	1-4		2-4	2-3	
Immigrant Families					
1. Non-poor	-.362	-.451	.454	-.054	.545
2. Newly Poor	-.967	.528	.255	-1.093	.610
3. Newly Non-poor	-1.382	.708	-.048	1.851	.939
4. Persistently Poor	-.719	-1.005	.079	.144	-1.503
ANOVA, P-Value	.000	.001	.421	.036	.000
Significant Contrasts*	1-3	1-2 1-3 2-4 3-4		2-3	1-4 3-4

* Bonferroni post-hoc test

The associations between parental characteristics and changes in poverty status were rather weak among non-immigrant families. As Table 3 shows, only positive parenting, consistent parenting, and parental depression were significantly associated with changes in poverty status, but the directions were not consistent. Persistently poor families were less likely to show decreases in positive parenting than persistently non-poor families, and more likely to show increases in consistent parenting than newly poor families. Newly non-poor families experienced a significantly larger decrease in parental depression than newly poor families.

4.1.3 Changes in poverty status and developmental outcomes

Table 4 provides information about differences in developmental outcomes between immigrant and non-immigrant children in the 4- to 9-year-old age group. At cycle 1, immigrant children had significantly lower levels of hyperactivity and conduct disorder. At cycle 2, the advantages of immigrant children over non-immigrant children extended to all five outcomes, although the differences in hyperactivity and conduct disorder became smaller. During the two-year period, immigrant children had slightly larger increases in prosocial behaviours, but smaller decreases in hyperactivity and conduct disorder than non-immigrant children. While immigrant children remained virtually unchanged in emotional disorder and showed decreases in indirect aggression, non-immigrant children showed increases in both outcomes.

Table 4: **Differences in Developmental Behaviours Between Immigrant and Non-immigrant Children, 4-9 Years Old**

		Hyperactivity -Inattention	Prosocial Behaviour	Emotional Disorder	Conduct Disorder	Indirect Aggression
Cycle 1	Immigrant	4.21	12.18	2.53	1.16	1.10
	Non-immigrant	4.92	11.95	2.54	1.55	1.18
	T-test, p	.000	.075	.931	.000	.158
Cycle 2	Immigrant	4.21	13.18	2.49	1.02	.99
	Non-immigrant	4.51	12.94	2.70	1.31	1.29
	T-test, p	.010	.037	.008	.000	.000
Change Cycle 2- Cycle 1	Immigrant	-.01	1.06	-.04	-.16	-.11
	Non-immigrant	-.42	.94	.16	-.24	.15
	T-test, p	.000	.379	.027	.116	.000

At the bivariate level, changes in poverty status were more strongly correlated with changes in children's developmental outcomes among immigrant families than among non-immigrants families (Table 5). Among immigrant families, children in newly poor families had the largest

decreases in prosocial behaviours and the largest increases in emotional disorder; however, they also had the largest decreases in conduct disorder. Immigrant children living in persistently poor families tended to improve their developmental outcomes. They showed the largest increases in prosocial behaviours and largest decreases in emotional disorder, and remained virtually unchanged in conduct disorder. By comparison, among non-immigrant families, changes in poverty status had no significant associations with changes in hyperactivity, emotional disorder, conduct disorder, and indirect aggression.

Table 5: **Changes in Poverty Status and Changes in Developmental Behaviours, 4-9 Years Old**

	Hyperactivity-Inattention (T2-T1)	Prosocial Behaviour (T2-T1)	Emotional Disorder (T2-T1)	Conduct Disorder (T2-T1)	Indirect Aggression (T2-T1)
Non-immigrant Families					
1. Non-poor	-.43	.95	.18	-.25	.13
2. Newly Poor	-.24	.21	.09	-.04	.35
3. Newly Non-poor	-.29	1.17	.30	-.41	.20
4. Persistently Poor	-.49	1.07	-.06	-.20	.13
ANOVA, P-Value	.657	.011	.185	.110	.310
Significant Contrasts*		1-2 2-3 2-4			
Immigrant Families					
1. Non-poor	.02	1.11	-.001	-.17	-.15
2. Newly Poor	.60	-.30	.60	-.68	-.41
3. Newly Non-poor	-.36	-.16	.25	.04	.20
4. Persistently Poor	-.26	1.91	-.66	-.005	.09
ANOVA, P-Value	.219	.000	.007	.032	.103
Significant Contrast *		2-4 3-4	1-4 2-4	2-3 2-4	

* Bonferroni post-hoc test

Measured by developmental outcomes at cycle two of the survey, immigrant children in persistently poor families did not face the disadvantages of non-immigrant children (Table 6). Among immigrant families, children living in persistently poor families did not rank the lowest in any of the five developmental outcomes at cycle 2 of the survey. In sharp contrast, non-immigrant children in persistently poor families clearly had disadvantages in hyperactivity, emotional disorder, conduct disorder, and indirect aggression. They had the highest levels in three of the four outcomes, and their differences with children in persistently non-poor families

were significant in all four outcomes. These results suggest that, although prolonged exposure to poverty may not further escalate children's developmental problems, children living in persistent poverty experienced disadvantages in developmental outcomes that sustained over time.

Table 6: **Changes in Poverty Status and Developmental Behaviours at Cycle 2, 4-9 Years Old**

	Hyperactivity-Inattention	Prosocial Behaviour	Emotional Disorder	Conduct Disorder	Indirect Aggression
Non-immigrant families					
1. Non-Poor	4.29	12.95	2.58	1.20	1.23
2. Newly Poor	5.58	12.52	2.95	1.74	1.39
3. Newly Non-poor	4.90	12.24	2.95	1.46	1.45
4. Persistently Poor	5.42	12.86	3.24	1.80	1.59
ANOVA, P-Value	.000	.144	.000	.000	.000
Significant Contrasts *	1-2 1-3 1-4		1-4	1-2 1-4 3-4	1-4
Immigrant families					
1. Non-Poor	4.18	13.30	2.53	.99	.91
2. Newly Poor	4.98	10.96	2.59	.70	1.10
3. Newly Non-poor	3.98	11.93	2.82	1.53	1.37
4. Persistently Poor	4.26	14.02	2.05	1.00	1.12
ANOVA, P-Value	.301	.000	.044	.001	.018
Significant Contrast *		1-2 1-3 2-4 3-4		1-3 2-3 3-4	1-3

* Bonferroni post-hoc test

The above bivariate analyses could not indicate whether the effects of changes in poverty status are conditioned by absolute income changes or influenced by changes in income sources, family structure, and parental characteristics. Tables 7 to 16 present results of multivariate analyses for each of the five selected developmental outcomes for immigrant and non-immigrant families. As explained before, changes in family structure contained four categories in non-immigrant families, but only three categories among immigrant families.

A. Hyperactivity

As shown in Table 7, variables representing economic changes were more likely to be significant, and added more explanatory power to the models for immigrant children than for non-immigrant children (as in Table 8). Changes in family structure explained little additional variance in the outcomes (Model 3). Changes in parental characteristics tended

to explain more variance in the outcome than did economic situation and family structure. The results presented in the final model suggested that children living in persistently non-poor families did not have advantages in hyperactivity over children in families which experienced poverty currently or in the past. Furthermore, absolute income changes moderated the effects of changes in poverty status.

Figure 1a suggests that absolute income increases reduced immigrant children's hyperactivity among persistently poor families, although these families on average had little absolute income changes. Overall, immigrant children in persistently poor families had lower levels of hyperactivity than children in persistently non-poor families.

For newly non-poor families, Figure 1b included only four points on the X-axis: mean absolute income increases (104%), one standard deviation below the mean (left), one and two standard deviations above the mean (right). The outcome value for two standard deviations below the mean was out of the reasonable range. This figure shows that in newly non-poor families, children's hyperactivity tended to elevate with increases in absolute income, although children in these families had overall lower levels of hyperactivity than children in persistently non-poor families.

For newly poor immigrant families, Figure 1c also included only four points on the X-axis: mean absolute income decreases (-48%), one and two standard deviations below the mean (left), one standard deviation above the mean (right). In this group, children's hyperactivity increased with decreases in absolute income.

Model 4 in Table 7 also revealed that the only other significant economic variable was new employment: children whose parents became newly employed tended to have higher levels of hyperactivity than those whose parents maintained stable employment. Single-parent status, regardless of whether it was persistent or recent, was associated with higher levels of children's hyperactivity. Increases in ineffective parenting and consistent parenting both escalated children's hyperactivity. Although country of birth made no difference, children's hyperactivity increased with parent's length of residence; also, non-white children tended to have higher levels of hyperactivity.

Figure 1a: **Hyperactivity Decreased with Absolute Income Increases among Persistently Poor Immigrant Families**

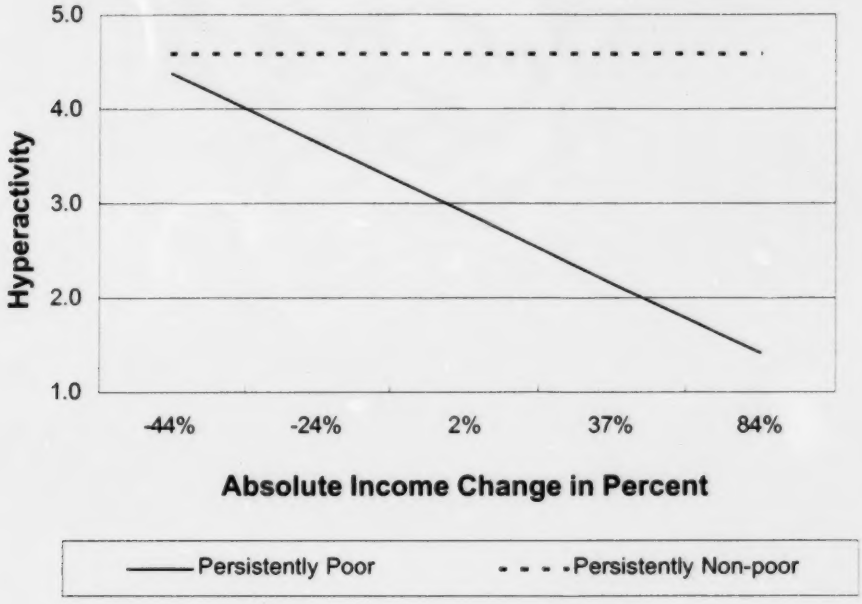


Figure 1b: **Children's Hyperactivity Increased with Absolute Income Increases among Newly Non-poor Immigrant Families**

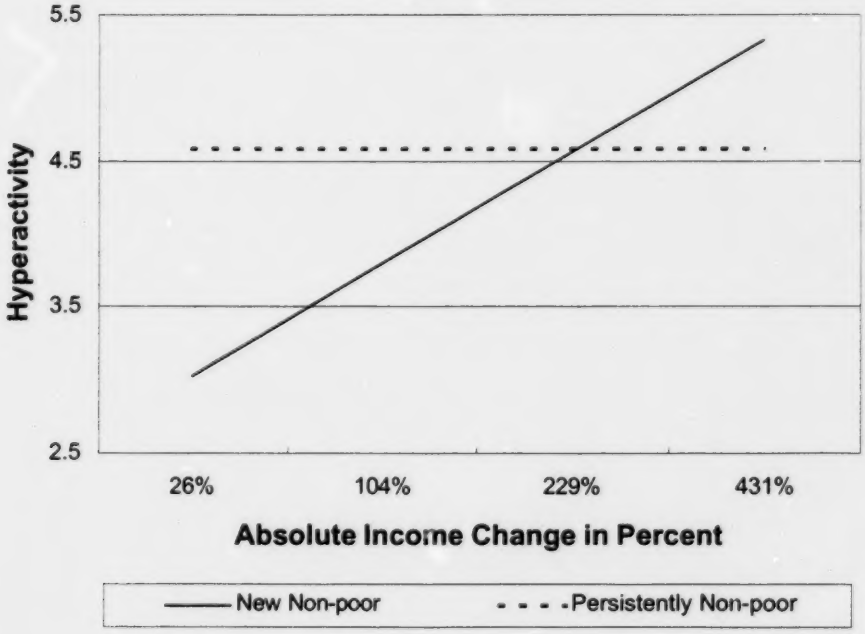
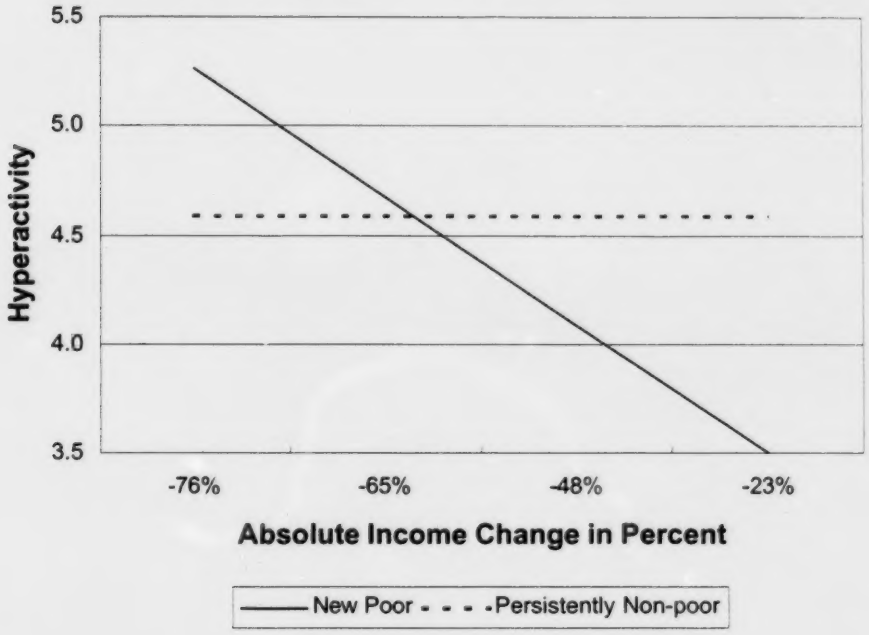


Figure 1c **Children's Hyperactivity Decreased with Absolute Income Increases among Newly Poor Immigrant Families**



Among non-immigrant families (Table 8), changes in poverty status and other related economic situations had little effects on the changes in children's hyperactivity. The addition of variables representing changes in economic situations resulted in less than a 1% increase in explained variance from Model 1 to Model 2. As observed in Model 2, absolute income increases among persistently poor families tended to intensify children's hyperactivity. Decreased welfare dependence and persistent unemployment of parents were associated with elevated levels of children's hyperactivity. The addition of family structure variables in Model 3 substantially reduced the coefficient of decreased welfare dependence, a finding suggesting that the effect of decreased welfare dependence may be partially mediated by changes in family structure. The larger increment in R-square from Model 3 to Model 4 suggested that changes in ineffective parenting and parental depression had stronger effects on the changes in children's hyperactivity than did changes in economic situation and family structure. Among all variables representing changes in economic situation, only decreased welfare dependence was significant in Model 4.

The results in Model 4 also suggested that children's hyperactivity was rather stable over the two-year study period. Decreases in the level of hyperactivity were more likely to be observed among older than younger children. Girls had larger decreases than boys. Children living in single-parent families at both cycles, or whose single parent later found a partner tended to increase their level of hyperactivity. Increases in the levels of ineffective parenting and parental depression intensified children's hyperactivity.

B. Prosocial behaviour

Economic variables tended to be more strongly correlated with changes in prosocial behaviors among immigrant families than non-immigrant families. Among immigrant families (Table 9), variables representing economic changes added, to Model 1, about 5% explained variance in prosocial behaviours at cycle 2. Of the significant economic variables in Model 2, however, only the positive effect of increased welfare dependence remained significant in Model 4. Parents' education increased immigrant children's prosocial behaviors. Increases in ineffective parenting reduced children prosocial behaviours. Non-white children had higher levels of prosocial behaviours than white children. Meanwhile, country of birth and parent's length of residence was immaterial.

Among non-immigrant families (Table 10), changes in economic situation and family structure explained little of the variance in the changes in children's prosocial behaviours, as R-square only slightly increased from Model 1 to Model 3. Results of Model 4 suggested that children in newly poor families were more likely to decrease their prosocial behaviours, compared with those in persistently non-poor families. No other economic variables had significant effects. Transitions from single-parent families to two-parent families tended to increase children's prosocial behaviours. Increases in positive parenting and decreases in ineffective parenting were associated with increased prosocial behaviours. The effect of increase in parental depression was also marginally significant.

C. Emotional Problems

Among immigrant families (Table 11), variables representing economic changes resulted in a 2.4% increase from Model 1 to Model 2 in explained variance in emotional problems. After controlling for changes in family structure and parental characteristics, children living in persistently poor families had lower levels of emotional disorder than those living in persistently non-poor families. On the other hand, increases in welfare dependence

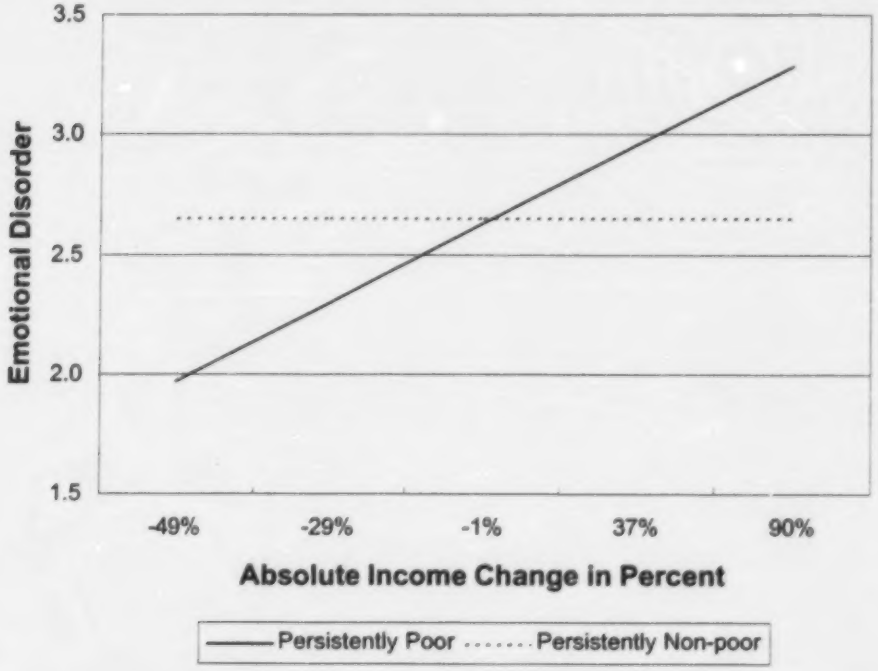
elevated immigrant children's emotional disorder. Unemployment of parents, whether it was persistent or recent, was associated with lower levels of children's emotional disorder. Changes from living with two parents to living with a single parent tended to escalate immigrant children's emotional disorder. Increases in positive parenting and decreases in ineffective parenting and parental depression tended to ameliorate immigrant children's emotional disorder. Although country of birth and race made no difference, immigrant children's emotional disorder increased as parents stayed longer in Canada after immigration.

Among non-immigrant families (Table 12), changes in parental characteristics tended to explain more of the variance in emotional disorder than did changes in economic situation and family structure. Results in Model 4 indicated that single-parent status, regardless of the recency or duration of this status, was associated with elevated levels of children's emotional disorder. Increases in positive parenting and consistent parenting, as well as decreases in ineffective parenting and parental depression, attenuated children's emotional disorder. Children living in families that became recently dependent on social welfare as the major income source tended to have escalated emotional disorder.

The positive and significant interaction between persistent poverty and absolute increases in income is counterintuitive. Figure 2 illustrates that, overall, absolute income for persistently poor families remained virtually unchanged, showing only a 1% decrease. However, among persistently poor families children's emotional disorder increased with increases in absolute income.

Further analyses suggest that the above result may entail some important underlying dynamics. Results of bivariate correlations indicated that, among families in persistent poverty, absolute income increases were significantly associated with new employment of parents and reduced dependence on social welfare. It is possible that the new employment of parents did not bring enough income into the household to pull the family out of poverty. At the same time low-pay jobs were a new source of stress for parents. Furthermore, working parents were no longer able to spend as much time with the child relative to when they were not employed. Thus, small economic gains resulting from new employment may not compensate for the contemporaneous psychological stress.

Figure 2: **Children's Emotional Disorder Increased with Absolute Income Increases among Persistently Poor Non-immigrant Families**



D. Conduct problems

Among immigrant families (Table 13), variables representing economic changes resulted in an increase of about 3.6% explained variance from Model 1 to Model 2. The significant economic variables in Model 2 remained significant in Model 4. Results in Model 4 showed that children in newly poor families tended to have lower conduct disorder than those in persistently non-poor families. Furthermore, among persistently poor and newly poor families, immigrant children's conduct disorder increased with decreases in absolute income. As Figure 3a illustrates, children living in persistently poor families experiencing some increases in absolute income tended to be similar to, or perform better than children in persistently non-poor families. Figure 3b illustrates how only when absolute income decreased by more than 60% did children living in newly poor families have higher levels of conduct disorder than children in persistently non-poor families. Similar to the results for emotional disorder, immigrant children with newly unemployed parents had lower levels of conduct disorder than children with persistently employed parents. Decreased welfare dependence also increased children's conduct disorder.

Figure 3a: **Children's Conduct Disorder Decreased with Absolute Income Increases among Persistently Poor Immigrant Families**

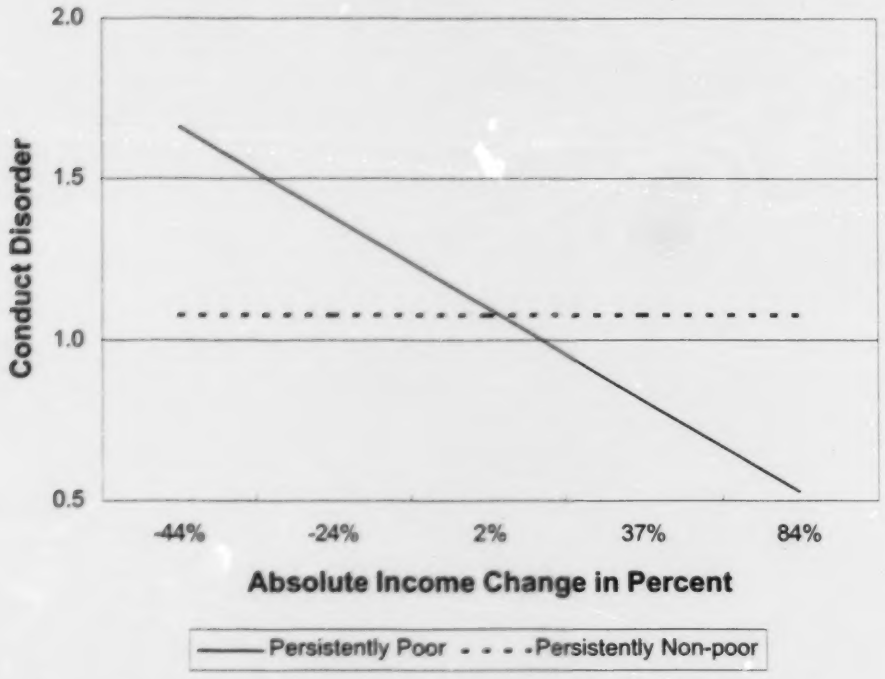


Figure 3b: **Children's Conduct Disorder Decreased with Absolute Income Increases among Newly Poor Immigrant Families**

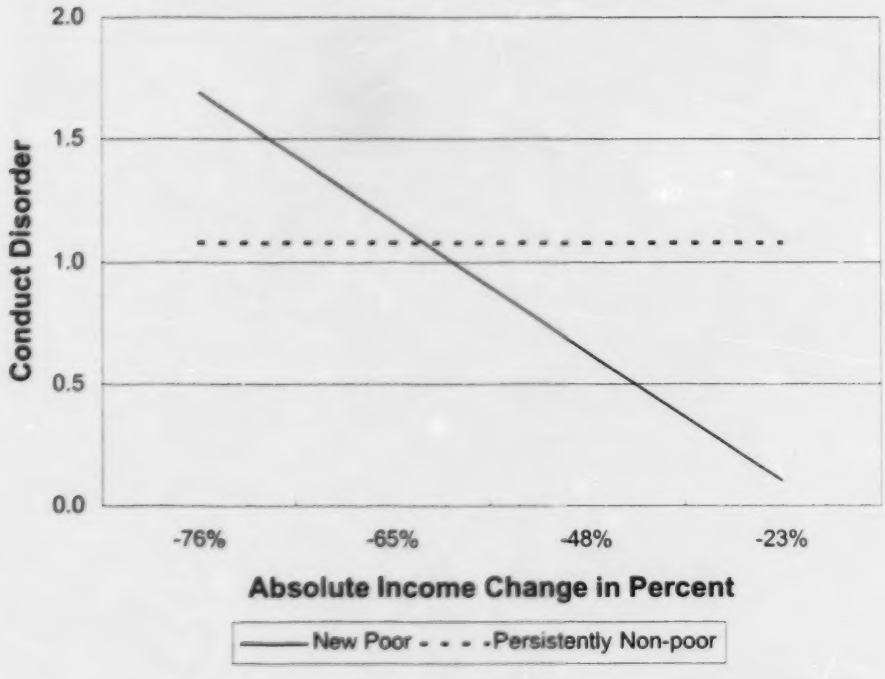


Figure 4a: **Children's Conduct Disorder Increased with Absolute Income Increases among Persistently Poor Non-immigrant Families**

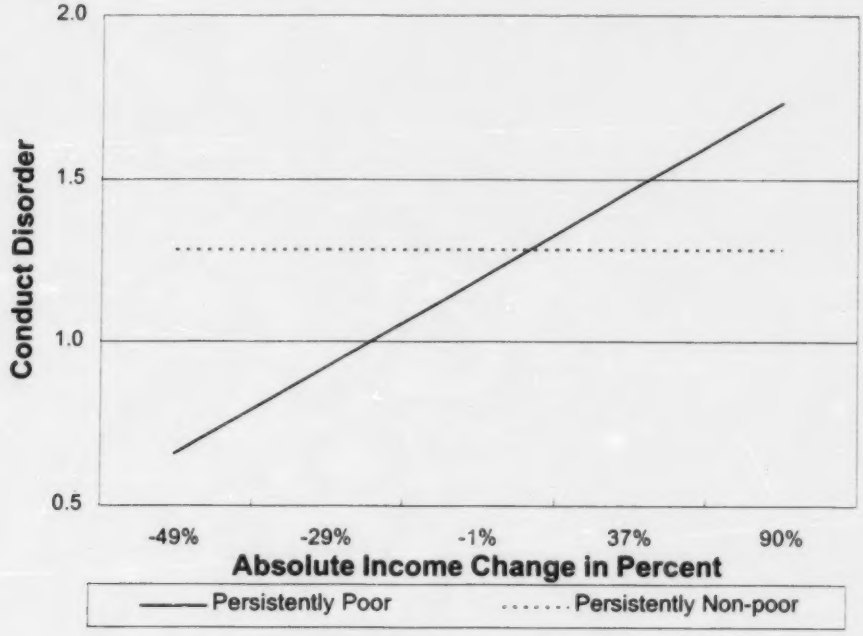


Figure 4b **Children's Conduct Disorder Decreased with Absolute Income Increases among Newly Non-poor Immigrant Families**

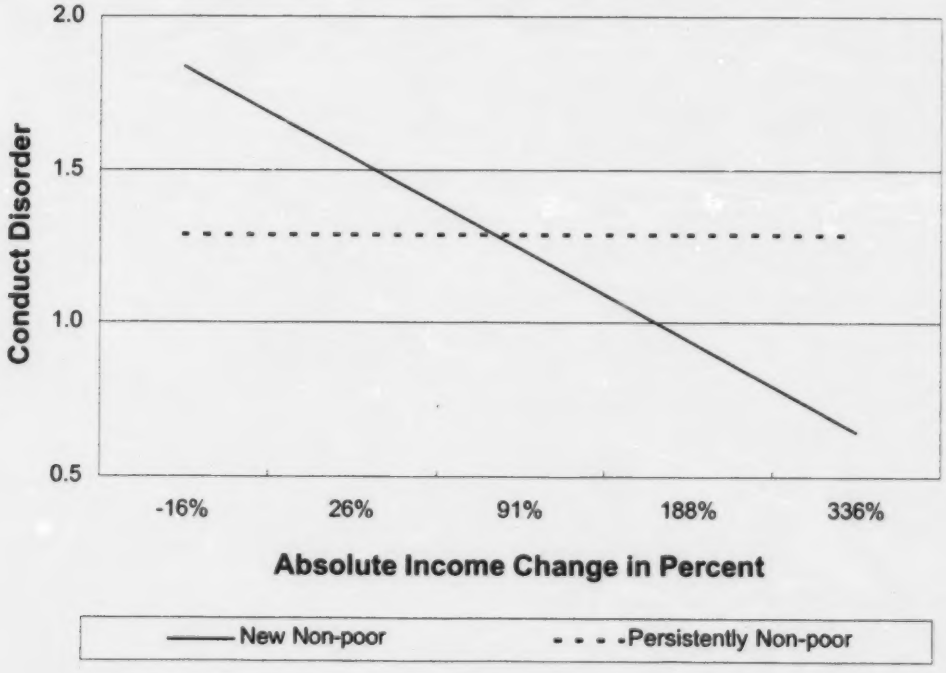
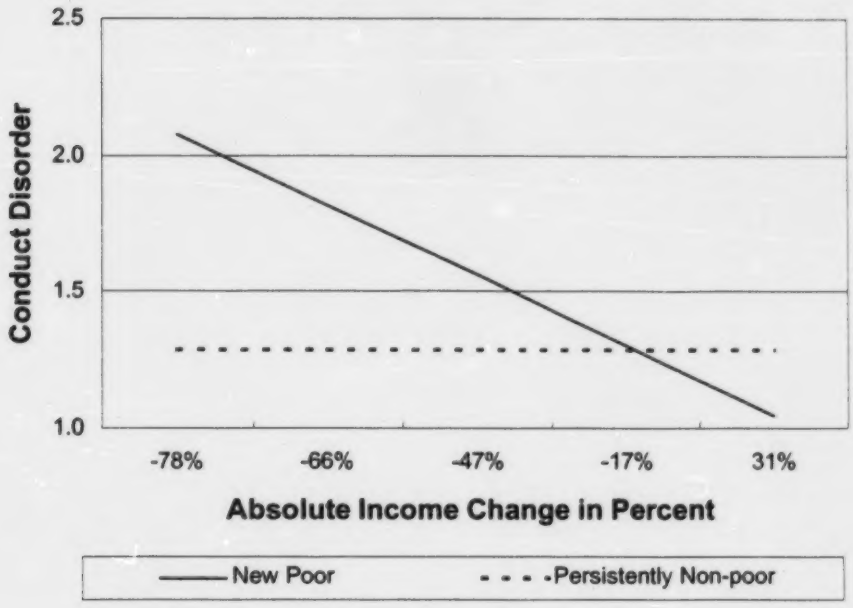


Figure 4c: **Children's Conduct Disorder Decreased with Absolute Income Increases among Newly Poor Non-immigrant Families**



The results in Model 4 of Table 13 also revealed that changes in family structure had no significant effects on immigrant children's conduct disorder. Increases in ineffective parenting and consistent parenting were both associated with elevated levels of children's conduct disorder. Foreign-born children tended to have higher levels of conduct disorder than children born to immigrant parents, while parents' length of residence and race made no significant difference.

Among non-immigrant families, the models for conduct disorder in Table 14 yielded many similar results to those for emotional disorder (Table 12). First, changes in parental characteristics tended to explain more variance in conduct disorder than changes in economic situation and family structure. Second, increases in positive parenting and decreases in ineffective parenting and parental depression tended to ameliorate children's conduct problems. Third, children living in families which became increasingly dependent on social welfare had higher levels of conduct disorder. Fourth, among persistently poor families, absolute income increases heightened children's conduct disorders, as shown in Figure 4a.

The models for conduct disorder also revealed some patterns that were not significant in the models for emotional disorder. First, breakdowns of two-parent families were associated with reduced levels of children's conduct disorder. Second, children with parents who were unemployed at both cycles had higher levels of conduct disorder. Third, among families recently moved out of poverty, absolute income increases helped to ameliorate children's conduct problems. As Figure 4b illustrated, newly non-poor families on average showed about 91% increases in absolute income. Only among those families whose absolute income almost doubled in the two-year period, did children have lower levels of conduct disorder than those in persistently non-poor families. This result suggests that transitions out of poverty without substantial increases in average income would not be enough to improve children's conduct problems. Third, the conditional effect of absolute income changes also held among families that fell into poverty. As illustrated in Figure 4c, newly poor families on average experienced about 47% of a decrease in absolute income. Only among those families whose absolute income decreased by 20% in the two-year period, did children have higher levels of conduct disorder than those in persistently non-poor families. Furthermore, the larger the decrease in absolute income, the larger the difference in children's conduct disorder between newly poor and persistently non-poor families.

E. Indirect aggression

Among immigrant families (Table 15), variables representing economic changes added 8.9% explained variance from Model 1 to Model 2. All the significant economic variables in Model 2 remained significant in Model 4 which controlled for changes in family structure and parental characteristics. The results in Model 4 suggested that children living in persistently poor families had higher levels of indirect aggression than those living in persistently non-poor families. In contrast, children in newly poor families had lower levels of indirect aggression than children in persistently non-poor families. However, children's indirect aggression increased with decreases in absolute income among newly poor families.

Children in newly non-poor families had on average higher levels of indirect aggression than those in persistently non-poor families. However, when absolute income increases

were substantial (more than doubling the previous income), children in newly non-poor families tended to have lower levels of indirect aggression than children in persistently non-poor families. Similar to the results for conduct disorder, decreased welfare dependence in the family was associated with higher levels of children's indirect aggression. While persistent unemployment of parents was associated with lower levels of children's indirect aggression, new employment increased children's indirect aggression.

Similar to the results for emotional disorder, changes from living with two parents to staying with a single parent increased immigrant children's indirect aggression. Increases in positive parenting and decreases in ineffective parenting ameliorated children's indirect aggression, while increases in consistent parenting elevated children's indirect aggression. The effect of country of birth became insignificant once economic variables were controlled. However, non-white children had lower levels of indirect aggression. Immigrant children's indirect aggression tended to increase as their parents stayed more years in Canada.

Among non-immigrant families (Table 16), changes in economic situation, family structure, and parental characteristics added little power to explain changes in outcome. Among persistently poor families, absolute income increases were associated with elevated levels of children's indirect aggression. In contrast, among newly non-poor families, absolute income increases ameliorated children's indirect aggression. Similar to the effects on conduct disorder, absolute income increases among newly non-poor families had to be substantial (in this case, about 80%) before their children's indirect aggression could approach or fall below the levels of those living in persistently non-poor families.

Living in single-parent families at both cycles, or changing from single-parent to two-parent families were associated with elevated levels of indirect aggression. Increases in ineffective parenting also intensified non-immigrant children's indirect aggression. Girls were more likely to increase indirect aggression than boys. Unlike the results of models for other developmental outcomes, older age and higher education of the parents tended to reduce children's indirect aggression.

Table 7: **Regression of Hyperactivity on Changes in Economic Situations, Family Structure and Parental Characteristics for Children of Immigrants, 4-9 Years Old**

	Model 1		Model 2		Model 3		Model 4	
	B	Std.E	B	Std.E	B	Std.E	B	Std.E
Constant	3.269 ***	0.654	2.712 ***	0.674	2.718 ***	0.670	1.897 **	0.661
Child's Age	-0.014	0.052	-0.025	0.051	-0.025	0.051	-0.009	0.051
Girl	-0.341	0.179	-0.347	0.178	-0.429 *	0.179	-0.380 *	0.175
PMK's Age	-0.073 ***	0.016	-0.059 ***	0.016	-0.053 **	0.016	-0.043 **	0.016
PMK's Education	0.581 **	0.202	0.514 *	0.204	0.426 *	0.204	0.522 **	0.198
Foreign-born	-0.004	0.281	-0.111	0.286	-0.193	0.285	0.028	0.279
Length of Immigration	0.024 *	0.010	0.024 *	0.010	0.021 *	0.010	0.025 *	0.010
Non-white	1.054 ***	0.184	1.071 ***	0.195	1.007 ***	0.195	1.140 ***	0.190
Initial Hyperactivity	0.614 ***	0.025	0.633 ***	0.025	0.624 ***	0.025	0.650 ***	0.025
Economic Situation								
New Poor			-1.074	0.749	-1.404	0.748	-1.542 *	0.733
New Non-poor			-1.768 **	0.579	-1.966 ***	0.581	-1.857 ***	0.570
Persistent Poor			-1.819 ***	0.341	-2.001 ***	0.346	-1.753 ***	0.336
New Poor* Income Increase			-1.306	0.944	-1.484	0.939	-1.487	0.919
New Non-poor* Income Increase			2.001 **	0.740	1.860 *	0.743	1.596 *	0.728
Persistent Poor* Income Increase			-1.451	0.939	-1.941 *	0.957	-2.507 **	0.933
Persistent Welfare Dependence			1.293 *	0.542	0.008	0.627	-0.078	0.611
Decreased Welfare Dependence			0.839	0.542	0.227	0.573	0.442	0.557
Increased Welfare Dependence			0.342	0.460	-0.479	0.536	-0.390	0.523
Unemployed, Both Cycles			0.744	0.491	1.133 *	0.518	0.792	0.505
Newly Unemployed			0.502	0.282	0.217	0.300	0.367	0.296
Newly Employed			0.963 ***	0.250	0.987 ***	0.249	0.936 ***	0.242
Family Structure								
Single Parent, Both Cycles					1.461 ***	0.424	1.214 **	0.415
Family Breakdown					1.493 **	0.506	1.189 *	0.508
Parental Characteristics								
Increase in Positive Parenting							-0.017	0.028
Increase in Ineffective Parenting							0.191 ***	0.023
Increase in Consistent Parenting							0.098 ***	0.025
Increase in Parental Depression							0.013	0.014
Increase in Family Dysfunction							-0.022	0.016
R-Square	0.380 ***		0.409 ***		0.418 ***		0.458 ***	

* p<0.05 ** p<0.01 *** p<0.001

Table 8: **Regression of Hyperactivity on Changes in Economic Situations, Family Structure and Parental Characteristics for Non-immigrant Children, 4-9 Years Old**

	Model 1		Model 2		Model 3		Model 4	
	B	Std.E	B	Std.E	B	Std.E	B	Std.E
Constant	2.955 ***	0.324	2.558 ***	0.338	2.448 ***	0.338	2.319 ***	0.330
Child's Age	-0.095 ***	0.026	-0.093 ***	0.026	-0.091 ***	0.026	-0.088 ***	0.026
Girl	-0.537 ***	0.087	-0.542 ***	0.087	-0.552 ***	0.087	-0.506 ***	0.084
PMK's Age	-0.013	0.009	-0.005	0.009	-0.002	0.009	-0.001	0.009
PMK's Education	-0.18	0.093	-0.152	0.093	-0.157	0.093	-0.174	0.09
Initial Hyperactivity	0.608 ***	0.012	0.600 ***	0.012	0.593 ***	0.012	0.623 ***	0.012
Economic Situation								
New Poor			0.526	0.359	0.448	0.358	0.479	0.348
New Non-poor			-0.079	0.297	-0.184	0.297	-0.343	0.289
Persistent Poor			-0.056	0.204	-0.161	0.205	-0.083	0.199
New Poor* Income Increase			0.264	0.438	0.228	0.437	0.214	0.425
New Non-poor* Income Increase			0.221	0.408	0.050	0.407	0.408	0.397
Persistent Poor* Income Increase			0.996 *	0.432	1.029 *	0.430	0.711	0.418
Persistent Welfare Dependence			0.013	0.273	-0.322	0.282	-0.259	0.274
Decreased Welfare Dependence			1.034 ***	0.243	0.633 *	0.249	0.527 *	0.242
Increased Welfare Dependence			0.480	0.283	0.287	0.290	0.245	0.281
Unemployed, Both Cycles			0.585 *	0.251	0.496 *	0.252	0.334	0.245
Newly Unemployed			0.055	0.150	0.064	0.158	-0.011	0.153
Newly Employed			0.044	0.113	-0.074	0.115	-0.141	0.112
Family Structure								
Single Parent, Both Cycles					0.624 ***	0.154	0.578 ***	0.15
Family Breakdown					0.221	0.241	0.150	0.234
Family Formation					1.542 ***	0.258	1.502 ***	0.251
Parental Characteristics								
Increase in Positive Parenting							-0.009	0.015
Increase in Ineffective Parenting							0.177 ***	0.012
Increase in Consistent Parenting							-0.019	0.013
Increase in Parental Depression							0.026 ***	0.007
Increase in Family Dysfunction							0.002	0.008
R-Square	0.389 ***		0.397 ***		0.403 ***		0.438 ***	

* p<0.05 ** p<0.01 *** p<0.001

Table 9: **Regression of Prosocial Behaviours on Changes in Economic Situations, Family Structure and Parental Characteristics for Children of Immigrants, 4-9 Years Old**

	Model 1		Model 2		Model 3		Model 4	
	B	Std.E	B	Std.E	B	Std.E	B	Std.E
Constant	5.758 ***	0.714	6.587 ***	0.733	6.585 ***	0.735	6.566 ***	0.732
Child's Age	0.081	0.060	0.075	0.059	0.073	0.059	0.093	0.059
Girl	0.214	0.203	0.224	0.202	0.257	0.205	0.317	0.202
PMK's Age	0.024	0.018	0.010	0.018	0.009	0.018	0.007	0.018
PMK's Education	0.772 ***	0.232	0.684 **	0.231	0.705 **	0.232	0.546 *	0.228
Foreign-Born	-0.562	0.324	-0.267	0.327	-0.230	0.328	-0.520	0.325
Length of Immigration	0.018	0.012	0.019	0.012	0.021	0.012	0.011	0.011
Non-white	1.546 ***	0.212	1.574 ***	0.224	1.603 ***	0.225	1.460 ***	0.221
Initial Prosocial Behaviours	0.366 ***	0.025	0.361 ***	0.025	0.360 ***	0.026	0.379 ***	0.026
Economic Situation								
New Poor			-1.958 *	0.868	-1.887 *	0.872	-1.404	0.858
New Non-poor			-2.159 *	0.88	-1.975 *	0.892	-1.656	0.877
Persistent Poor			0.376	0.379	0.434	0.386	0.221	0.379
New Poor* Income Increase			0.804	1.076	0.844	1.077	1.286	1.062
New Non-poor* Income Increase			2.359	1.483	2.220	1.487	1.610	1.456
Persistent Poor* Income Increase			-2.069 *	1.022	-1.938	1.050	-1.444	1.031
Persistent Welfare Dependence			-1.491 *	0.597	-1.057	0.695	-1.058	0.682
Decreased Welfare Dependence			0.535	0.653	0.680	0.676	0.459	0.661
Increased Welfare Dependence			1.235 *	0.508	1.490 *	0.599	1.430 *	0.591
Unemployed, Both Cycles			-0.026	0.548	-0.143	0.576	0.117	0.565
Newly Unemployed			-0.302	0.319	-0.186	0.339	-0.154	0.337
Newly Employed			-0.466	0.281	-0.459	0.281	-0.302	0.277
Family Structure								
Single Parent, Both Cycles					-0.473	0.477	-0.383	0.469
Family Breakdown					-0.603	0.580	-0.638	0.583
Parental Characteristics								
Increase in Positive Parenting							-0.062	0.033
Increase in Ineffective Parenting							-0.204 ***	0.027
Increase in Consistent Parenting							-0.023	0.029
Increase in Parental Depression							0.015	0.016
Increase in Family Dysfunction							0.002	0.018
R-Square	0.243 ***		0.291 ***		0.292 ***		0.332 ***	

* p<0.05 ** p<0.01 *** p<0.001

Table 10: **Regression of Prosocial Behaviours on Changes in Economic Situations, Family Structure and Parental Characteristics for Non-immigrant Children, 4-9 Years Old**

	Model 1		Model 2		Model 3		Model 4	
	B	Std.E	B	Std.E	B	Std.E	B	Std.E
Constant	6.360 ***	0.369	6.348 ***	0.387	6.249 ***	0.388	6.319 ***	0.387
Child's Age	0.006	0.030	0.008	0.030	0.010	0.030	-0.019	0.030
Girl	0.860 ***	0.097	0.846 ***	0.097	0.844 ***	0.097	0.839 ***	0.097
PMK's Age	0.013	0.010	0.012	0.010	0.014	0.010	0.015	0.010
PMK's Education	0.090	0.103	0.090	0.104	0.107	0.105	0.116	0.104
Initial Prosocial Behaviours	0.468 ***	0.013	0.468 ***	0.013	0.468 ***	0.013	0.479 ***	0.013
Economic Situation								
New Poor			-0.899 *	0.394	-0.898 *	0.395	-0.927 *	0.392
New Non-poor			0.224	0.336	0.224	0.337	0.254	0.335
Persistent Poor			0.125	0.229	0.111	0.230	0.048	0.228
New Poor* Income Increase			-0.598	0.481	-0.594	0.482	-0.585	0.479
New Non-poor* Income Increase			-0.078	0.465	-0.181	0.466	-0.276	0.463
Persistent Poor* Income Increase			-0.153	0.481	-0.180	0.481	-0.018	0.478
Persistent Welfare Dependence			-0.091	0.307	-0.121	0.319	-0.163	0.317
Decreased Welfare Dependence			-0.200	0.272	-0.384	0.280	-0.361	0.279
Increased Welfare Dependence			-0.284	0.314	-0.343	0.322	-0.350	0.320
Unemployed, Both Cycles			0.092	0.282	0.104	0.284	0.129	0.282
Newly Unemployed			-0.035	0.169	-0.044	0.178	-0.053	0.176
Newly Employed			0.238	0.127	0.149	0.130	0.205	0.130
Family Structure								
Single Parent, Both Cycles					-0.003	0.176	0.007	0.174
Family Breakdown					0.101	0.269	0.118	0.267
Family Formation					1.016 ***	0.299	1.096 ***	0.297
Parental Characteristics								
Increase in Positive Parenting							0.081 ***	0.017
Increase in Ineffective Parenting							-0.074 ***	0.014
Increase in Consistent Parenting							0.008	0.015
Increase in Parental Depression							0.019 *	0.009
Increase in Family Dysfunction							-0.016	0.009
R-Square	0.284 ***		0.286 ***		0.288 ***		0.300 ***	

* p<0.05 ** p<0.01 *** p<0.001

Table 11: **Regression of Emotional Disorder on Changes in Economic Situations, Family Structure and Parental Characteristics for Children of Immigrants, 4-9 Years Old**

	Model 1		Model 2		Model 3		Model 4	
	B	Std.E	B	Std.E	B	Std.E	B	Std.E
Constant	3.507 ***	0.506	3.258 ***	0.530	3.279 ***	0.523	3.322 ***	0.516
Child's Age	-0.004	0.041	-0.009	0.041	-0.002	0.041	-0.020	0.040
Girl	-0.080	0.141	-0.102	0.142	-0.104	0.141	-0.035	0.138
PMK's Age	-0.069 ***	0.013	-0.065 ***	0.013	-0.063 ***	0.013	-0.062 ***	0.013
PMK's Education	0.164	0.159	0.042	0.162	0.010	0.160	-0.033	0.155
Foreign-Born	0.552 *	0.222	0.373	0.228	0.307	0.227	0.292	0.220
Length Of Immigration	0.035 ***	0.008	0.041 ***	0.008	0.036 ***	0.008	0.034 ***	0.008
Non-white	-0.105	0.145	0.032	0.156	-0.062	0.155	0.029	0.150
Initial Emotional Disorder	0.301 ***	0.027	0.315 ***	0.028	0.311 ***	0.027	0.375 ***	0.027
Economic Situation								
New Poor			-0.726	0.599	-1.001	0.593	-0.726	0.578
New Non-Poor			1.129 *	0.468	0.768	0.466	0.356	0.455
Persistent Poor			-0.713 **	0.273	-0.678 *	0.274	-0.557 *	0.266
New Poor* Income Increase			-0.797	0.756	-0.982	0.746	-0.527	0.727
New Non-poor* Income Increase			-0.930	0.597	-0.707	0.594	-0.296	0.580
Persistent Poor* Income Increase			-1.346	0.751	-1.161	0.758	-1.313	0.737
Persistent Welfare Dependence			1.122 *	0.433	0.309	0.488	-0.228	0.475
Decreased Welfare Dependence			0.788	0.431	0.701	0.448	0.695	0.434
Increased Welfare Dependence			0.996 **	0.372	0.896 *	0.422	1.187 **	0.412
Unemployed, Both Cycles			-0.876 *	0.390	-0.983 *	0.406	-0.954 *	0.395
Newly Unemployed			0.133	0.226	-0.348	0.237	-0.571 *	0.234
Newly Employed			0.257	0.196	0.193	0.194	0.097	0.188
Family Structure								
Single Parent, Both Cycles					0.493	0.322	0.322	0.313
Family Breakdown					2.230 ***	0.382	1.840 ***	0.380
Parental Characteristics								
Increase in Positive Parenting							-0.047 *	0.022
Increase in Ineffective Parenting							0.110 ***	0.018
Increase in Consistent Parenting							-0.017	0.020
Increase in Parental Depression							0.050 ***	0.011
Increase in Family Dysfunction							0.009	0.012
R-Square	0.153 ***		0.177 ***		0.202 ***		0.263 ***	

* p<0.05 ** p<0.01 *** p<0.001

Table 12: **Regression of Emotional Disorder on Changes in Economic Situations, Family Structure and Parental Characteristics for Non-immigrant Children, 4-9 Years Old**

	Model 1		Model 2		Model 3		Model 4	
	B	Std.E	B	Std.E	B	Std.E	B	Std.E
Constant	1.627 ***	0.25	1.337 ***	0.265	1.269 ***	0.27	1.184 ***	0.260
Child's Age	-0.053 *	0.02	-0.049 *	0.021	-0.048 *	0.02	-0.040 *	0.021
Girl	0.020	0.07	0.018	0.069	0.012	0.07	0.025	0.067
PMK's Age	-0.001	0.01	0.004	0.007	0.006	0.01	0.006	0.007
PMK's Education	0.079	0.08	0.103	0.075	0.098	0.08	0.070	0.073
Initial Emotional Disorder	0.548 ***	0.01	0.540 ***	0.014	0.538 ***	0.01	0.564 ***	0.014
Economic Situation								
New Poor			-0.232	0.291	-0.270	0.29	-0.208	0.283
New Non-poor			0.236	0.240	0.205	0.24	0.130	0.234
Persistent Poor			-0.087	0.165	-0.147	0.17	-0.063	0.161
New Poor* Income Increase			-0.236	0.354	-0.184	0.36	-0.150	0.345
New Non-poor* Income Increase			-0.099	0.332	-0.174	0.33	0.087	0.323
Persistent Poor* Income Increase			1.093 **	0.347	1.104 ***	0.35	0.814 *	0.337
Persistent Welfare Dependence			0.132	0.221	-0.003	0.23	0.001	0.222
Decreased Welfare Dependence			0.405 *	0.196	0.263	0.2	0.130	0.196
Increased Welfare Dependence			0.712 **	0.228	0.510 *	0.23	0.466 *	0.227
Unemployed, Both Cycles			0.421 *	0.203	0.370	0.2	0.276	0.198
Newly Unemployed			-0.019	0.121	-0.115	0.13	-0.177	0.124
Newly Employed			0.166	0.091	0.108	0.09	0.056	0.091
Family Structure								
Single Parent, Both Cycles					0.286 *	0.13	0.257 *	0.121
Family Breakdown					0.588 **	0.2	0.526 **	0.189
Family Formation					0.580 **	0.21	0.563 **	0.202
Parental Characteristics								
Increase in Positive Parenting							-0.051 ***	0.012
Increase in Ineffective Parenting							0.123 ***	0.010
Increase in Consistent Parenting							-0.023 *	0.011
Increase in Parental Depression							0.031 ***	0.006
Increase in Family Dysfunction							0.010	0.006
R-Square	0.263 ***		0.271 ***		0.274 ***		0.317 ***	

* p<0.05 ** p<0.01 *** p<0.001

Table 13: **Regression of Conduct Disorder on Changes in Economic Situations, Family Structure and Parental Characteristics for Children of Immigrants, 4-9 Years Old**

	Model 1		Model 2		Model 3		Model 4	
	B	Std.E	B	Std.E	B	Std.E	B	Std.E
Constant	1.273 ***	0.292	1.334 ***	0.301	1.350 ***	0.301	1.174 ***	0.302
Child's Age	-0.030	0.024	-0.037	0.024	-0.036	0.024	-0.032	0.024
Girl	-0.408 ***	0.081	-0.396 ***	0.081	-0.386 ***	0.082	-0.375 ***	0.081
PMK's Age	-0.018 *	0.007	-0.019 *	0.007	-0.019 *	0.007	-0.017 *	0.007
PMK's Education	0.349 ***	0.092	0.327 ***	0.093	0.328 ***	0.093	0.357 ***	0.092
Foreign-Born	0.429 ***	0.129	0.314 *	0.131	0.318 *	0.132	0.370 **	0.131
Length of Immigration	0.006	0.005	0.008	0.005	0.007	0.005	0.009	0.005
Non-white	-0.194 *	0.085	-0.128	0.090	-0.141	0.091	-0.075	0.089
Initial Conduct Disorder	0.359 ***	0.024	0.351 ***	0.024	0.346 ***	0.024	0.373 ***	0.024
Economic Situation								
New Poor			-1.285 ***	0.349	-1.306 ***	0.350	-1.389 ***	0.347
New Non-poor			0.376	0.269	0.317	0.271	0.310	0.268
Persistent Poor			-0.149	0.157	-0.111	0.160	-0.006	0.157
New Poor* Income Increase			-1.302 **	0.448	-1.321 **	0.448	-1.346 **	0.443
New Non-Poor* Income Increase			-0.347	0.343	-0.275	0.346	-0.342	0.342
Persistent Poor* Income Increase			-0.965 *	0.433	-0.838	0.444	-0.959 *	0.438
Persistent Welfare Dependence			0.385	0.250	0.375	0.285	0.281	0.281
Decreased Welfare Dependence			1.119 ***	0.249	1.194 ***	0.263	1.248 ***	0.258
Increased Welfare Dependence			0.044	0.212	0.152	0.243	0.236	0.241
Unemployed, Both Cycles			0.257	0.225	0.160	0.238	0.066	0.234
Newly Unemployed			-0.240	0.130	-0.322 *	0.139	-0.338 *	0.139
Newly Employed			-0.146	0.113	-0.159	0.113	-0.188	0.111
Family Structure								
Single Parent, Both Cycles					-0.110	0.186	-0.180	0.185
Family Breakdown					0.357	0.224	0.350	0.226
Parental Characteristics								
Increase in Positive Parenting							0.003	0.013
Increase in Ineffective Parenting							0.076 ***	0.011
Increase in Consistent Parenting							0.034 **	0.012
Increase in Parental Depression							0.006	0.006
Increase in Family Dysfunction							0.009	0.007
R-Square	0.226 ***		0.262 ***		0.264 ***		0.300 ***	

* p<0.05 ** p<0.01 *** p<0.001

Table 14: **Regression of Conduct Disorder on Changes in Economic Situations, Family Structure and Parental Characteristics for Non-immigrant Children, 4-9 Years Old**

	Model 1		Model 2		Model 3		Model 4	
	B	Std.E	B	Std.E	B	Std.E	B	Std.E
Constant	1.033 ***	0.169	0.798 ***	0.177	0.789 ***	0.177	0.737 ***	0.174
Child's Age	-0.045 ***	0.014	-0.045 ***	0.014	-0.045 ***	0.014	-0.039 **	0.014
Girl	-0.214 ***	0.046	-0.222 ***	0.046	-0.219 ***	0.046	-0.202 ***	0.045
PMK's Age	-0.001	0.005	0.004	0.005	0.004	0.005	0.004	0.005
PMK's Education	-0.092	0.050	-0.056	0.050	-0.055	0.05	-0.071	0.048
Initial Conduct Disorder	0.485 ***	0.012	0.473 ***	0.012	0.471 ***	0.012	0.494 ***	0.011
Economic Situation								
New Poor			-0.137	0.191	-0.147	0.191	-0.116	0.186
New Non-poor			0.502 **	0.158	0.478 **	0.159	0.392 *	0.154
Persistent Poor			-0.089	0.109	-0.092	0.109	-0.047	0.106
New Poor* Income Increase			-0.519 *	0.234	-0.578 *	0.234	-0.571 *	0.228
New Non-Poor* Income Increase			-0.884 ***	0.217	-0.908 ***	0.218	-0.723 **	0.212
Persistent Poor* Income Increase			1.003 ***	0.230	1.013 ***	0.23	0.820 ***	0.224
Persistent Welfare Dependence			0.179	0.146	0.120	0.151	0.150	0.147
Decreased Welfare Dependence			0.200	0.129	0.125	0.133	0.070	0.130
Increased Welfare Dependence			0.457 **	0.151	0.516 ***	0.155	0.503 ***	0.151
Unemployed, Both Cycles			0.576 ***	0.134	0.569 ***	0.134	0.503 ***	0.131
Newly Unemployed			-0.026	0.080	0.051	0.084	0.017	0.082
Newly Employed			0.051	0.060	0.043	0.062	0.001	0.060
Family Structure								
Single Parent, Both Cycles					0.085	0.083	0.063	0.081
Family Breakdown					-0.332 **	0.129	-0.368 **	0.125
Family Formation					0.245	0.138	0.226	0.134
Parental Characteristics								
Increase in Positive Parenting							-0.019 *	0.008
Increase in Ineffective Parenting							0.092 ***	0.006
Increase in Consistent Parenting							-0.011	0.007
Increase in Parental Depression							0.010 **	0.004
Increase in Family Dysfunction							0.001	0.004
R-Square	0.296 ***		0.312 ***		0.314 ***		0.353 ***	

* p<0.05 ** p<0.01 *** p<0.001

Table 15: **Regression of Indirect Aggression of Changes in Economic Situations, Family Structure and Parental Characteristics for Children of Immigrants, 4-9 Years Old**

	Model 1		Model 2		Model 3		Model 4	
	B	Std.E	B	Std.E	B	Std.E	B	Std.E
Constant	0.642 *	0.316	0.173	0.318	0.235	0.316	0.037	0.318
Child's Age	0.008	0.026	0.009	0.025	0.011	0.025	0.020	0.025
Girl	0.378 ***	0.088	0.373 ***	0.085	0.375 ***	0.085	0.415 ***	0.085
PMK's Age	-0.019 *	0.008	-0.012	0.008	-0.013	0.008	-0.011	0.008
PMK's Education	0.172	0.100	0.102	0.097	0.079	0.097	0.080	0.096
Foreign-Born	0.276 *	0.140	0.244	0.139	0.214	0.139	0.242	0.137
Length of Immigration	0.026 ***	0.005	0.030 ***	0.005	0.028 ***	0.005	0.028 ***	0.005
Non-white	-0.289 **	0.092	-0.342 ***	0.095	-0.375 ***	0.095	-0.353 ***	0.093
Initial Indirect Aggression	0.261 ***	0.026	0.296 ***	0.026	0.294 ***	0.026	0.306 ***	0.025
Economic Situation								
New Poor			-1.628 ***	0.353	-1.741 ***	0.353	-1.734 ***	0.350
New Non-poor			2.253 ***	0.376	1.988 ***	0.380	1.846 ***	0.380
Persistent Poor			0.342 *	0.166	0.367 *	0.168	0.477 **	0.166
New Poor* Income Increase			-2.362 ***	0.442	-2.447 ***	0.440	-2.371 ***	0.436
New Non-poor* Income Increase			-2.379 ***	0.467	-2.142 ***	0.470	-2.022 ***	0.468
Persistent Poor* Income Increase			0.796	0.448	0.890	0.457	0.818	0.452
Persistent Welfare Dependence			0.099	0.265	-0.145	0.304	-0.204	0.300
Decreased Welfare Dependence			0.881 ***	0.261	0.918 ***	0.275	1.025 ***	0.270
Increased Welfare Dependence			0.037	0.218	0.110	0.255	0.224	0.252
Unemployed, Both Cycles			-0.328	0.235	-0.420	0.249	-0.529 *	0.245
Newly Unemployed			0.169	0.135	-0.032	0.143	0.015	0.144
Newly Employed			0.429 ***	0.121	0.426 ***	0.120	0.410 **	0.119
Family Structure								
Single Parent, Both Cycles					0.055	0.203	-0.056	0.201
Family Breakdown					0.965 ***	0.245	0.885 ***	0.249
Parental Characteristics								
Increase in Positive Parenting							-0.032 *	0.014
Increase in Ineffective Parenting							0.057 ***	0.011
Increase in Consistent Parenting							0.043 ***	0.012
Increase in Parental Depression							0.008	0.007
Increase in Family Dysfunction							0.007	0.008
R-Square	0.149 ***		0.238 ***		0.249 ***		0.283 ***	

* p<0.05 ** p<0.01 *** p<0.001

Table 16: **Regression of Indirect Aggression on Changes in Economic Situations, Family Structure and Parental Characteristics for Non-Immigrant Children, 4-9 Year Old**

	Model 1		Model 2		Model 3		Model 4	
	B	Std.E	B	Std.E	B	Std.E	B	Std.E
Constant	1.273 ***	0.176	1.066 ***	0.187	1.036 ***	0.186	1.036 ***	0.187
Child's Age	-0.003	0.015	-0.002	0.015	0.001	0.015	0.002	0.015
Girl	0.308 ***	0.049	0.300 ***	0.049	0.301 ***	0.048	0.296 ***	0.048
PMK's Age	-0.015 **	0.005	-0.011 *	0.005	-0.011 *	0.005	-0.012 *	0.005
PMK's Education	-0.163 **	0.052	-0.147 **	0.053	-0.153 **	0.053	-0.164 **	0.052
Initial Indirect Aggression	0.454 ***	0.015	0.452 ***	0.015	0.446 ***	0.015	0.457 ***	0.015
Economic Situation								
New Poor			0.076	0.201	0.030	0.200	0.042	0.199
New Non-poor			0.609 ***	0.168	0.545 ***	0.168	0.490 **	0.167
Persistent Poor			-0.046	0.116	-0.086	0.116	-0.062	0.116
New Poor* Income Increase			0.095	0.251	0.038	0.251	0.028	0.25
New Non-poor* Income Increase			-1.049 ***	0.233	-1.116 ***	0.233	-1.007 ***	0.232
Persistent Poor* Income Increase			0.728 **	0.243	0.766 **	0.243	0.692 **	0.241
Persistent Welfare Dependence			0.074	0.155	-0.119	0.160	-0.091	0.159
Decreased Welfare Dependence			0.189	0.136	0.011	0.140	-0.021	0.139
Increased Welfare Dependence			0.004	0.160	-0.031	0.164	-0.038	0.163
Unemployed, Both Cycles			0.258	0.143	0.202	0.144	0.153	0.143
Newly Unemployed			0.120	0.085	0.183 *	0.089	0.163	0.089
Newly Employed			0.160 *	0.064	0.133 *	0.066	0.117	0.066
Family Structure								
Single Parent, Both Cycles					0.349 ***	0.087	0.344 ***	0.087
Family Breakdown					-0.172	0.136	-0.195	0.136
Family Formation					0.567 ***	0.149	0.550 ***	0.148
Parental Characteristics								
Increase in Positive Parenting							-0.011	0.009
Increase in Ineffective Parenting							0.049 ***	0.007
Increase in Consistent Parenting							-0.002	0.008
Increase in Parental Depression							0.006	0.004
Increase in Family Dysfunction							0.001	0.005
R-Square	0.203 ***		0.212 ***		0.217 ***		0.229 ***	

* p<0.05 ** p<0.01 *** p<0.001

4.2 Older children – 10- to 11-year-olds

For children who were 10- to 11-years-old at the cycle 1 survey, we did not conduct separate analyses for immigrant and non-immigrant children due to sample size constraints. Also, whereas for the younger age group of children, developmental outcomes were reported by the person most knowledgeable (PMK) about the child, self-reported outcomes were used for children in the older group. Many previous studies suggest that parent-reported and children's self-reported developmental behaviours in general are weakly to moderately correlated.

4.2.1 Economic changes in the family

Families with older children tended to be in a better economic situation than those with younger children. They were more likely to be persistently non-poor, without dependence on social welfare, and with stable employment. Meanwhile, they also did not show the large economic improvements of non-immigrant families with younger children. As shown in Table 17, there were slightly more newly poor families than newly non-poor families. The number of families that decreased their welfare dependence was just slightly higher than the number of families that increased their welfare dependence. There were more families with newly employed parent(s) (19.5%) than with newly unemployed parent(s) (11.4%).

Table 17: **Economic Changes in the Family, 10-11 Years Old**

Variables	Categories	Frequency	Percent
Poverty	Non-poor	1670	80.8
	Newly Poor	120	5.8
	Newly Non-poor	103	5.0
	Persistently Poor	174	8.4
Welfare Dependence	Persistent Dependence	87	4.2
	Decreased Dependence	59	2.9
	Increased Dependence	55	2.7
	No Dependence	1865	90.3
Employment	No Parents Working	99	4.8
	Stable Employment	1327	64.2
	New Unemployment	236	11.4
	New Employment	404	19.5

Changes in family poverty status were moderately related to changes in welfare dependence (Cramer's V (CV)= .37, contingency coefficient (C)= .54, $p<.000$). Among persistently poor families, 39.9% persistently depended on social welfare, 10.4% decreased their welfare

dependence, 3.5% increased their welfare dependence, and 46.2% had no dependence on welfare. The corresponding percentages were 6.7%, 3.3%, 16.7% and 73.3%, respectively for newly poor families, and 6.8%, 13.6%, 1.9%, and 77.7%, respectively for newly non-poor families. Among persistently non-poor families, about 96.9% never depended on social welfare in the two-year period.

Changes in poverty status were also related to changes in employment (CV = .33, C= .49, p<.000). Among persistently non-poor families, less than 1% had no parent working at both cycles of the survey, and about 71.2% maintained stable employment. In contrast, in persistently poor families, 40.1% had no parent working at both cycles of the survey, and only 27.9% maintained stable employment. Newly non-poor families were more likely to have at least one parent moving into employment (39.2%) than becoming unemployed (6.9%). Among newly poor families, 30.3% had at least one parent becoming employed, while 23.5% had at least one parent becoming unemployed.

4.2.2 Changes in poverty status and changes in family environment

As shown in Table 18, children in the 10- to 11-year-old group living in single-parent families increased from 17.2% to 18.4% in the two-year study period. About 79.2% of children lived in two-parent families at both cycles, and 14.9% lived in single-parent families at both cycles.

Table 18: **Changes in the Family Environment, 10-11 Years Old**

	1994/95	1996/97	Significance of Difference
% of Single Parent	17.2%	18.4%	***
Parental Depression	4.723	4.374	***
Family Dysfunction	7.948	8.074	***

*** p<0.001

While levels of parental depression declined over the two-year period, levels of family dysfunction increased. We were unable to examine changes in parenting for the older children, since only the PMK report of parenting was available at cycle 1, and child self-reported parenting was available at cycle 2.

As shown in Table 19, persistently poor families tended to have the highest levels of parental depression and family dysfunction, followed by newly poor families. Newly non-poor families

and persistently poor families had lower levels of parental nurturance, as per the child-reported parenting scale.

Table 19: **Changes in Poverty Status and Parental Characteristics at Cycle 2, 10-11 Years Old**

	Parental Nurturance	Parental Rejection	Parental Depression	Family Dysfunction
1. Non-Poor	18.719	9.440	3.723	7.866
2. Newly Poor	18.834	8.961	6.645	9.335
3. Newly Non-poor	17.015	8.225	4.340	8.030
4. Persistently Poor	17.646	9.135	8.776	9.644
ANOVA, P-Value	.000	.104	.000	.000
Significant Contrasts*	1-3		1-2	1-2
	1-4		1-4	1-4
	2-3		2-3	
			2-4	
			3-4	

* Bonferroni post-hoc test

4.2.3 Changes in poverty status and developmental outcomes

At the bivariate level, changes in poverty status were not significantly related to changes in children's self-reported hyperactivity, prosocial behaviours, emotional disorder, and conduct disorder in the 10- to 11-year-old age group (Table 20). For indirect aggression, children in newly poor families had the largest increases, while children in persistently poor families had the largest decreases. Change in poverty status also made no difference in children's developmental outcomes at cycle 2 (Table 21). The only exception was conduct disorder in which children in persistently poor families exhibited higher levels than those in persistently non-poor families.

Multivariate analyses indicated that the effects of changes in poverty status were somewhat conditioned by absolute income changes, and that some other economic variables also had important effects on some developmental outcomes. Tables 22 to 26 present multivariate analyses for hyperactivity, prosocial behaviours, emotional disorder, conduct disorder, and indirect aggression. Since we did not have change scores of parenting variables for children in the 10- to 11-year-old age group, we used cycle 1 values of positive, ineffective, and consistent parenting for Model 4 in each table.

Table 20: **Changes in Poverty Status and Changes in Developmental Behaviours, 10-11 Year Old**

	Hyperactivity-inattention (T2-T1)	Prosocial Behaviour (T2-T1)	Emotional Disorder (T2-T1)	Conduct Disorder (T2-T1)	Indirect Aggression (T2-T1)
1. Non-poor	-.03	-1.40	-.39	-.05	-.18
2. Newly Poor	-.04	-2.20	-.28	-.33	.74
3. Newly Non-poor	-.55	-.77	-.83	-.33	-.41
4. Persistently Poor	.21	-.95	-.37	-.04	-.63
ANOVA, P-Value	.523	.093	.782	.500	.000
Significant Contrasts*					1-2 2-3 2-4

* Bonferroni post-hoc test

Table 21: **Changes in Poverty Status and Developmental Behaviours, 10-11 Year Old**

	Hyperactivity-Inattention	Prosocial Behaviour	Emotional Disorder	Conduct Disorder	Indirect Aggression
1. Non-Poor	3.96	13.32	3.41	1.15	1.68
2. Newly Poor	3.63	13.84	3.81	1.16	2.00
3. Newly Non-Poor	4.33	14.06	4.08	1.40	1.99
4. Persistently Poor	4.65	13.08	3.46	1.69	1.83
ANOVA, P-Value	.031	.176	.207	.007	.202
Significant Contrasts*				1-4	

* Bonferroni post-hoc test

A. Hyperactivity

In Table 22 for regression models using hyperactivity as the dependent variable, the explained variances increased by 2.3% from Model 1 to Model 2 due to the addition of economic variables. All the significant variables in Model 2 remained significant in Model 4 where variables representing family structure and parental characteristics were controlled. According to the results in Model 4, larger decreases in absolute income were associated with lower levels of children's hyperactivity among newly poor families. Conversely, children in newly non-poor families showed lower levels of hyperactivity than those living in persistently non-poor families if their families had a substantial absolute income increase. The average absolute income more than doubled (105%) in the two-year study period among newly non-poor families. Notably, this was also the amount of income increase beyond which children in this group had similar levels of hyperactivity as those in

persistently non-poor families. While decreased welfare dependence reduced children's hyperactivity, increased welfare dependence had the opposite effect.

Changes in family structure had no significant effects on children's self-reported hyperactivity. Higher levels of consistent parenting at cycle 1 were associated with lower levels of hyperactivity. Increases in family dysfunction were marginally associated with decreases in children's hyperactivity. Non-white children tended to have higher levels of hyperactivity than white children, while immigrant status made no difference.

B. Prosocial behaviours

In Table 23, for prosocial behaviours, changes in family structure and parental characteristics had no significant effects on changes in outcome. The addition of economic variables only increased the explained variance from Model 1 to Model 2 by 1.1%. Among newly poor families, larger decreases in absolute income were associated with larger decreases in children's prosocial behaviours. Increased welfare dependence promoted prosocial behaviours. Persistent unemployment of parents brought down children's prosocial behaviours. Girls were more likely to increase their prosocial behaviours than boys. Race and immigrant status made no difference.

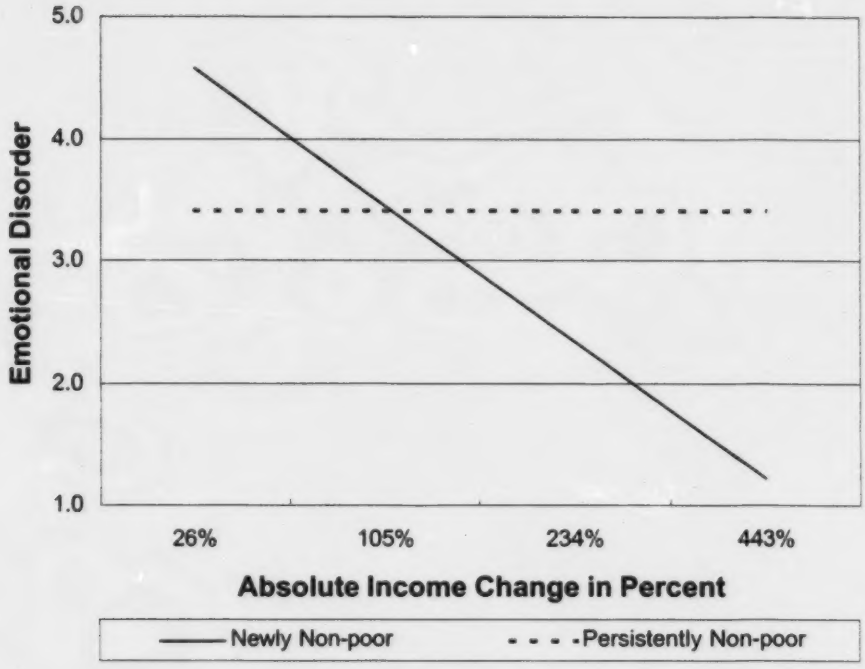
C. Emotional disorder

In Table 24, for emotional disorder, the addition of economic variables increased very little of the explained variance from Model 1 to Model 2. However, the conditional effect of absolute income increases among newly non-poor families remained significant in Model 4. Figure 5 illustrated this conditional effect based on the coefficients in Model 4. On the x-axis, four points of absolute income change were included: the mean absolute increase (105%) among newly non-poor families, one standard deviation below the mean (left), one and two standard deviations above the mean (right). Only when absolute income at least doubled did children in newly non-poor families exhibit similar or lower levels of emotional disorder than children in persistently non-poor families.

In model 4, other economic variables had no significant effects. While positive parenting at cycle 1 was marginally associated with increased emotional disorder, consistent parenting showed the opposite effect. Increased family dysfunction was marginally

associated with deceased levels of children's emotional disorder. Girls had larger increases in emotional disorder than boys. While immigrant status made no differences, non-white children had lower levels of emotional disorder than white children.

Figure 5: **Older Children's Emotional Disorder Decreased with Absolute Income Increases among Newly Non-poor Families**

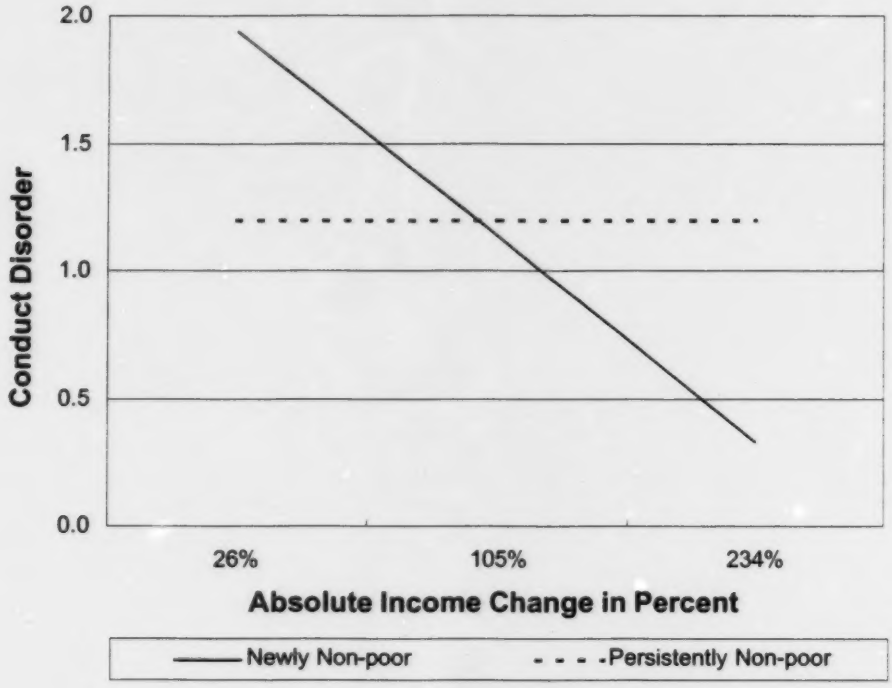


D. Conduct disorder

In Table 25, for conduct disorder, the addition of economic variables increased explained variance by only 1.8% from Model 1 to Model 2. Changes in family structure added even less explained variance, while none of the parental characteristics were significant. According to Model 4, the effect of moving out of poverty was conditioned by absolute income change, a result similar to that found in the models for emotional disorder. As Figure 6 illustrates, only when absolute average income more than doubled did the children in newly non-poor families show similar or lower levels of conduct disorder than children in persistently non-poor families. Both persistent welfare dependence and decreased welfare dependence were associated with lower levels of children's conduct disorder relative to no welfare dependence. New unemployment of parents elevated children's conduct disorder. While family breakdown or formation had no significant effects, living

with single parents over a prolonged period elevated children's conduct disorder. There were no significant differences due to immigrant status. Non-white children had marginally higher levels of conduct disorder than white children. Girls had lower levels of conduct disorder than boys.

Figure 6: **Older Children's Conduct Disorder Decreased with Absolute Income Increases among Newly Non-poor Families**



E. Indirect aggression

In Table 26, for indirect aggression, no economic variables had significant effects. While living with a single parent for a prolonged period intensified children's indirect aggression, the change from a two-parent to a single-parent family yielded children's indirect aggression. Lower levels of ineffective parenting and higher levels of consistent parenting at cycle 1 were associated with reduced indirect aggression. Both country of birth and race had no significant effects.

Table 22: **Regression of Hyperactivity on Changes in Economic Situations, Family Structure and Parental Characteristics for Children 10-11 Years Old**

	Model 1		Model 2		Model 3		Model 4	
	B	Std.E	B	Std.E	B	Std.E	B	Std.E
Constant	2.299	1.586	1.631	1.590	1.657	1.593	2.668	1.709
Child's Age	-0.039	0.144	0.018	0.144	0.018	0.144	0.028	0.144
Girl	0.127	0.144	0.102	0.144	0.095	0.144	0.080	0.144
PMK's Age	0.013	0.015	0.013	0.015	0.012	0.015	0.011	0.016
PMK's Education	-0.328 *	0.154	-0.301	0.154	-0.302	0.154	-0.290	0.155
Child of Immigrants	-0.225	0.203	-0.119	0.203	-0.107	0.205	-0.095	0.204
Non-white	0.675 *	0.287	0.774 **	0.294	0.766 **	0.294	0.707 *	0.297
Initial Hyperactivity	0.444 ***	0.024	0.434 ***	0.024	0.434 ***	0.024	0.424 ***	0.024
Economic Situation								
New Poor			0.896	0.602	0.857	0.605	0.805	0.603
New Non-Poor			1.717 **	0.611	1.697 **	0.612	1.750 **	0.610
Persistent Poor			0.627	0.344	0.584	0.352	0.508	0.352
New Poor* Income Increase			2.110 **	0.734	2.073 **	0.738	2.062 **	0.738
New Non-poor* Income Increase			-2.637 **	0.907	-2.606 **	0.913	-2.658 **	0.912
Persistent Poor* Income Increase			-1.006	0.803	-1.046	0.808	-0.967	0.806
Persistent Welfare Dependence			0.177	0.500	0.109	0.509	0.175	0.508
Decreased Welfare Dependence			-1.062 *	0.424	-1.029 *	0.431	-0.995 *	0.434
Increased Welfare Dependence			1.130 *	0.477	1.126 *	0.478	1.234 *	0.480
Unemployed, Both Cycles			0.141	0.468	0.132	0.469	0.097	0.468
Newly Unemployed			-0.289	0.241	-0.253	0.258	-0.211	0.258
Newly Employed			0.273	0.198	0.318	0.203	0.269	0.204
Family Structure								
Single Parent, Both Cycles					0.165	0.232	0.157	0.233
Family Breakdown					-0.118	0.413	-0.104	0.412
Family Formation					-0.396	0.580	-0.455	0.579
Parental Characteristics								
Positive Parenting							-0.001	0.027
Ineffective Parenting							0.005	0.021
Consistent Parenting							-0.069 ***	0.021
Parental Depression							0.003	0.014
Family Dysfunction							-0.030 *	0.014
R-Square	0.213 ***		0.236 ***		0.237 ***		0.247 ***	

* p<0.05 ** p<0.01 *** p<0.001

Table 23: **Regression of Prosocial Behaviours on Changes in Economic Situations, Family Structure and Parental Characteristics for Children 10-11 Years Old**

	Model 1		Model 2		Model 3		Model 4	
	B	Std.E	B	Std.E	B	Std.E	B	Std.E
Constant	8.257 ***	1.945	8.353 ***	1.969	8.320 ***	1.970	8.356 ***	2.108
Child's Age	-0.306	0.177	-0.305	0.177	-0.310	0.177	-0.323	0.177
Girl	1.292 ***	0.180	1.300 ***	0.182	1.321 ***	0.182	1.339 ***	0.182
PMK's Age	0.021	0.018	0.018	0.019	0.021	0.019	0.017	0.019
PMK's Education	0.285	0.190	0.300	0.192	0.321	0.192	0.307	0.193
Child of Immigrants	0.324	0.244	0.349	0.247	0.283	0.250	0.248	0.250
Non-white	-0.017	0.347	0.024	0.357	0.016	0.357	-0.029	0.362
Initial Prosocial Behaviours	0.452 ***	0.026	0.446 ***	0.026	0.447 ***	0.026	0.434 ***	0.026
Economic Situation								
New Poor			0.903	0.776	1.067	0.780	1.224	0.778
New Non-poor			0.179	0.727	0.205	0.728	0.214	0.726
Persistent Poor			0.447	0.433	0.573	0.441	0.642	0.440
New Poor* Income Increase			1.786 *	0.911	1.951 *	0.914	2.152 *	0.914
New Non-poor* Income Increase			1.079	1.078	1.229	1.084	1.172	1.081
Persistent Poor* Income Increase			-0.619	0.997	-0.563	1.002	-0.604	1.000
Persistent Welfare Dependence			0.242	0.612	0.473	0.626	0.345	0.625
Decreased Welfare Dependence			-0.364	0.529	-0.249	0.535	-0.451	0.539
Increased Welfare Dependence			1.312 *	0.644	1.260 *	0.645	1.067	0.647
Unemployed, Both Cycles			-1.297 *	0.565	-1.295 *	0.564	-1.201 *	0.563
Newly Unemployed			0.233	0.307	0.106	0.328	0.081	0.328
Newly Employed			0.133	0.244	0.124	0.251	0.178	0.251
Family Structure								
Single Parent, Both Cycles					-0.471	0.28	-0.393	0.283
Family Breakdown					0.498	0.53	0.448	0.533
Family Formation					-0.564	0.68	-0.435	0.681
Parental Characteristics								
Positive Parenting							0.039	0.034
Ineffective Parenting							-0.047	0.026
Consistent Parenting							0.025	0.026
Parental Depression							0.016	0.017
Family Dysfunction							0.031	0.017
R-Square	0.245 ***		0.256 ***		0.258 ***		0.260 ***	

* p<0.05 ** p<0.01 *** p<0.001

Table 24: **Regression of Emotional Disorder on Changes in Economic Situations, Family Structure and Parental Characteristics for Children 10-11 Years Old**

	Model 1		Model 2		Model 3		Model 4	
	B	Std.E	B	Std.E	B	Std.E	B	Std.E
Constant	0.391	1.565	0.403	1.584	0.290	1.586	0.646	1.701
Child's Age	0.089	0.143	0.097	0.144	0.106	0.144	0.113	0.143
Girl	0.669 ***	0.142	0.653 ***	0.144	0.656 ***	0.144	0.670 ***	0.143
PMK's Age	0.006	0.015	0.005	0.015	0.005	0.015	0.005	0.015
PMK's Education	0.081	0.154	0.091	0.156	0.074	0.156	0.076	0.156
Child of Immigrants	-0.131	0.199	-0.095	0.202	-0.066	0.203	-0.028	0.203
Non-white	-0.549 *	0.280	-0.549	0.288	-0.538	0.288	-0.625 *	0.290
Initial Emotional Disorder	0.406 ***	0.024	0.403 ***	0.024	0.401 ***	0.024	0.396 ***	0.025
Economic Situation								
New Poor			0.222	0.623	0.209	0.626	0.229	0.622
New Non-poor			1.588 *	0.624	1.581 *	0.625	1.602 *	0.622
Persistent Poor			0.297	0.345	0.229	0.353	0.156	0.351
New Poor* Income Increase			0.015	0.742	0.028	0.744	0.163	0.741
New Non-poor* Income Increase			-2.125 *	0.920	-2.272 *	0.925	-2.296 *	0.921
Persistent Poor* Income Increase			0.758	0.802	0.691	0.807	0.780	0.802
Persistent Welfare Dependence			0.030	0.515	-0.036	0.527	0.024	0.525
Decreased Welfare Dependence			-0.439	0.424	-0.523	0.429	-0.614	0.431
Increased Welfare Dependence			0.673	0.483	0.672	0.484	0.662	0.485
Unemployed, Both Cycles			-0.376	0.474	-0.366	0.474	-0.388	0.472
Newly Unemployed			-0.316	0.245	-0.386	0.263	-0.357	0.262
Newly Employed			-0.284	0.198	-0.338	0.204	-0.397	0.204
Family Structure								
Single Parent, Both Cycles					0.162	0.229	0.184	0.230
Family Breakdown					0.351	0.422	0.390	0.420
Family Formation					0.755	0.540	0.802	0.537
Parental Characteristics								
Positive Parenting							0.059 *	0.027
Ineffective Parenting							0.010	0.021
Consistent Parenting							-0.076 ***	0.021
Parental Depression							0.025	0.013
Family Dysfunction							-0.029 *	0.014
R-Square	0.192 ***		0.200 ***		0.202 ***		0.216 ***	

* p<0.05 ** p<0.01 *** p<0.001

Table 25: **Regression of Conduct Disorder on Changes in Economic Situations, Family Structure and Parental Characteristics for Children 10-11 Years Old**

	Model 1		Model 2		Model 3		Model 4	
	B	Std.E	B	Std.E	B	Std.E	B	Std.E
Constant	2.459 *	0.965	2.294 *	0.969	2.292 *	0.966	2.294 *	1.046
Child's Age	-0.074	0.089	-0.053	0.089	-0.047	0.089	-0.041	0.089
Girl	-0.359 ***	0.091	-0.385 ***	0.092	-0.412 ***	0.092	-0.410 ***	0.092
PMK's Age	-0.015	0.009	-0.016	0.010	-0.019 *	0.010	-0.017	0.010
PMK's Education	-0.244 *	0.096	-0.255 **	0.097	-0.269 **	0.097	-0.279 **	0.097
Child of Immigrants	-0.136	0.124	-0.153	0.125	-0.097	0.126	-0.079	0.126
Non-white	0.361 *	0.177	0.386 *	0.181	0.393 *	0.181	0.382 *	0.184
Initial Conduct Disorder	0.365 ***	0.026	0.357 ***	0.026	0.351 ***	0.026	0.345 ***	0.027
Economic Situation								
New Poor			0.023	0.378	-0.097	0.378	-0.100	0.377
New Non-Poor			1.080 **	0.390	1.065 **	0.389	1.054 **	0.389
Persistent Poor			0.521 *	0.216	0.417	0.220	0.379	0.220
New Poor* Income Increase			0.266	0.454	0.135	0.455	0.158	0.455
New Non-poor* Income Increase			-1.565 **	0.577	-1.694 **	0.579	-1.653 **	0.579
Persistent Poor* Income Increase			0.430	0.500	0.404	0.501	0.442	0.500
Persistent Welfare Dependence			-0.478	0.310	-0.677 *	0.315	-0.627 *	0.315
Decreased Welfare Dependence			-0.473	0.268	-0.574 *	0.270	-0.541 *	0.272
Increased Welfare Dependence			-0.571	0.304	-0.527	0.303	-0.553	0.305
Unemployed, Both Cycles			-0.195	0.287	-0.189	0.286	-0.212	0.286
Newly Unemployed			0.317 *	0.152	0.440 **	0.162	0.424 **	0.162
Newly Employed			-0.085	0.121	-0.070	0.124	-0.092	0.125
Family Structure								
Single Parent, Both Cycles					0.415 **	0.142	0.399 **	0.143
Family Breakdown					-0.463	0.264	-0.442	0.264
Family Formation					0.432	0.345	0.454	0.345
Parental Characteristics								
Positive Parenting							0.009	0.017
Ineffective Parenting							0.020	0.013
Consistent Parenting							-0.024	0.013
Parental Depression							0.016	0.009
Family Dysfunction							-0.012	0.008
R-Square	0.161 ***		0.179 ***		0.186 ***		0.193 ***	

* p<0.05 ** p<0.01 *** p<0.001

Table 26: **Regression of Indirect Aggression on Changes in Economic Situations, Family Structure and Parental Characteristics for Children 10-11 Years Old**

	Model 1		Model 2		Model 3		Model 4	
	B	Std.E	B	Std.E	B	Std.E	B	Std.E
Constant	4.470 ***	1.000	4.387 ***	1.012	4.428 ***	1.010	4.569 ***	1.090
Child's Age	-0.172	0.092	-0.172	0.093	-0.170	0.093	-0.167	0.092
Girl	0.050	0.092	0.056	0.093	0.030	0.093	0.012	0.092
PMK's Age	-0.042 ***	0.010	-0.040 ***	0.010	-0.042 ***	0.010	-0.038 ***	0.010
PMK's Education	-0.094	0.100	-0.084	0.102	-0.096	0.102	-0.074	0.102
Child of Immigrants	0.187	0.130	0.172	0.132	0.217	0.132	0.228	0.132
Non-white	0.125	0.182	0.095	0.187	0.101	0.187	0.167	0.188
Initial Indirect Aggression	0.346 ***	0.024	0.345 ***	0.025	0.344 ***	0.024	0.325 ***	0.025
Economic Situation								
New Poor			0.633	0.378	0.523	0.378	0.441	0.375
New Non-Poor			0.651	0.395	0.625	0.393	0.653	0.390
Persistent Poor			-0.071	0.230	-0.151	0.233	-0.150	0.232
New Poor* Income Increase			0.201	0.460	0.061	0.460	-0.054	0.458
New Non-poor* Income Increase			-0.955	0.585	-1.050	0.586	-1.000	0.581
Persistent Poor* Income Increase			0.530	0.528	0.521	0.530	0.470	0.526
Persistent Welfare Dependence			0.100	0.321	-0.099	0.327	-0.034	0.325
Decreased Welfare Dependence			0.098	0.278	0.003	0.280	0.060	0.281
Increased Welfare Dependence			-0.318	0.323	-0.293	0.322	-0.244	0.322
Unemployed, Both Cycles			-0.054	0.301	-0.045	0.300	-0.114	0.297
Newly Unemployed			-0.091	0.161	0.066	0.172	0.081	0.171
Newly Employed			-0.162	0.128	-0.138	0.131	-0.180	0.131
Family Structure								
Single Parent, Both Cycles					0.375 *	0.149	0.307 *	0.149
Family Breakdown					-0.608 *	0.271	-0.558 *	0.269
Family Formation					0.347	0.366	0.290	0.363
Parental Characteristics								
Positive Parenting							0.004	0.018
Ineffective Parenting							0.040 ***	0.013
Consistent Parenting							-0.045 ***	0.014
Parental Depression							-0.012	0.009
Family Dysfunction							0.007	0.009
R-Square	0.144 ***		0.150 ***		0.158 ***		0.176 ***	

* p<0.05 ** p<0.01 *** p<0.001

5. Conclusion

5.1 Summary and discussions

Does moving out of poverty ameliorate young children's developmental behaviours? Does falling into poverty result in increases in children's behavioural problems? How do the behavioural problems of children living in persistently poor families change over time? These questions are the primary interests of this study. The results of our analyses indicated that we should not answer these questions in a simplistic way. Although the overall effects of economic changes in the family were rather weak and had no consistent directions in their influences on children's developmental outcomes, the context in which economic changes manifest or do not manifest their effects deserves detailed discussions.

The finding that children's developmental problems did not deteriorate among persistently poor families seems encouraging. However, among non-immigrant children in the 4- to 9-year-old age group, those living in persistently poor families definitely showed disadvantages in hyperactivity, emotional disorder, conduct disorder, and indirect aggression at cycle 2 of the survey. This is consistent with the findings of our previous cross-sectional analyses of cycle 1 data of the NLSCY (Beiser, Hou, Hyman and Tousignant 1998; 2000). The present results suggest that, although prolonged exposure to poverty may not further escalate children's developmental problems, young children living in persistent poverty experienced disadvantages that sustained over time.

A salient finding of this study was the conditional effect of absolute income change among families exhibiting recent movements out of poverty. Simply moving out of poverty may not be sufficient to improve conduct disorder and indirect aggression for non-immigrant children aged 4- to 9-years. A substantial improvement, approximately doubling the absolute income is needed in order to observe a significant impact on children's behavioural outcomes due to changes in poverty status. This pattern also applies to hyperactivity, emotional disorder, and conduct disorder among children in the group of 10- to 11-year-olds.

A different conditional effect of absolute income was found among persistently poor non-immigrant families. For non-immigrant children in the 4-to-9-year-old age group, increases in

absolute income were associated with increases in children's emotional disorder, conduct disorder, and indirect aggression. Detailed analyses suggest a tentative explanation: small economic gains might not compensate poverty-related psychological harm to parents and children. While some families in persistent poverty experienced some economic gains, the increases were typically small, and kept the family within the poverty zone. Furthermore, parents in persistently poor families who showed increases in absolute income were more likely to move into employment and consequently receive less, or even be disqualified for welfare payments.

Thus, while the transition from welfare dependence to employment resulted in small gains in absolute income that were not enough to pull the family out of poverty, parents might experience elevated stress from working at low-paying jobs. In addition, these working parents might spend less time with their children than they did previously. The conditional effect of absolute income change among families in persistent poverty seemed to be in the opposite direction to that observed among families recently moving out of poverty, but both effects may essentially tell the same story: small increases in absolute income are not going to improve children's developmental outcomes.

The scenario for immigrant children is different: immigrant children in persistently poor families seemed to benefit from small absolute income increases. Absolute income increases tended to reduce hyperactivity, conduct disorder, and indirect aggression for immigrant children living in persistently poor families. The difference in this conditional effect between immigrant and non-immigrant children may be related to their differential associations between changes in poverty status and other economic changes. Our descriptive analyses indicated that persistently poor immigrant families were far less likely to depend on welfare than their non-immigrant counterparts. Immigrant families recently falling into poverty were also less likely to persistently depend on welfare or become dependent on welfare than their non-immigrant counterparts. Furthermore, among persistently poor families, immigrant parents were much more likely to be employed during the two-year study period than non-immigrant parents. Thus, gains in absolute income among persistently poor immigrant families were less likely to be associated with the transition from welfare dependence to employment.

Furthermore, immigrant families in persistent poverty tended to have lower average income than their non-immigrant counterparts, probably because they were not protected by the social welfare to the same extent as non-immigrant families were. Thus, it is possible that poor immigrant families fell deeper in poverty and their children suffered a larger degree of material deprivation. Consequently, poor immigrant children could benefit more directly from small increases in absolute income.

The conditional effect of absolute income changes was also observed among immigrant families that recently fell into poverty. Larger decreases in absolute income were associated with higher levels of conduct disorder, indirect aggression, and to a lesser degree, hyperactivity. For newly poor non-immigrant families, this conditional effect presented only for conduct disorder.

Changes in welfare dependence had no significant effect in most cases, in some instances, their significant effects were not in consistent directions. When other economic and parental factors were controlled, persistent dependence on welfare had no significant detrimental impact on children's developmental outcomes.

Changes in parents' employment status also had no significant effects on children's developmental outcomes among non-immigrant families. Of the five selected outcomes, there was only one significant relationship among non-immigrant children in the 4- to 9-year-old age group.

By comparison, parents' employment did not seem beneficial to immigrant children's developmental outcomes. For instance, when parents found new employment, immigrant children's hyperactivity and indirect aggression elevated. In contrast, when parents became unemployed, immigrant children's emotional disorder and conduct disorder reduced. If both parents were without jobs at both cycles of the survey, children tended to have lower levels of emotional disorder and indirect aggression. It is possible that parental attention is much more indispensable for immigrant children since new immigrant relative to non-immigrant families tended to have smaller social networks to support the care of their children, and a smaller economic capacity to access other child care services.

For non-immigrant children in the 4- to 9-year-old age group, a consistent finding across the five selected outcomes indicated that the transition from single-parent family status to a two-parent family was just as detrimental to children's developmental behaviours as invariable single-parent family status. Moreover, children living in newly formed two-parent families or persistently single-parent families had worse outcomes than children who always lived in two-parent families. It is possible that any form of family transition may constitute an environment that impacts negatively on children. On the other hand, our results also showed that breakdown from a two-parent to a single-parent family reduced children's conduct disorder. And, in most cases, children in newly broken-up families had similar levels of developmental outcomes as those always living with both parents. A potential explanation might be that only those troubled marriages or partnerships were going to break up, and that children might be better off living with a single parent than staying with two parents with a dysfunctional relationship (Anderson et al. 1999; Hetherington and Stanley-Hagan 1999). These patterns were rather similar for children in the 10- to 11-year-old age group, most of whom were from non-immigrant families. For immigrant children, family breakdown was associated with increased levels of hyperactivity, emotional disorder, and indirect aggression.

Among non-immigrant families, economic changes were not as important as changes in parental characteristics in influencing children's developmental outcomes, although the differences were often not substantial. Among immigrant families, however, changes in the economic situation were often more important than changes in parental characteristics. This result is consistent with our hypothesis that changes in family economic situation have a stronger impact on immigrant children than non-immigrant children.

Furthermore, we found rather weak correlations between changes in poverty status and changes in parental characteristics. In particular, persistently poor or newly poor families were more likely to experience improvements rather than deteriorations in parenting, family function, and the mental health of parents. Thus, although poverty was generally associated with poor parenting, family dysfunction, and parental depression, the strength of this association may not increase over time.

Without significant and strong correlations between changes in poverty status and changes in parental characteristics, and without strong relations between changes in poverty status and developmental outcomes, the role of parental characteristics in mediating the effects of economic change was not evident. This finding seems inconsistent with the results of previous cross-sectional analyses. Studies using cycle 1 data of the NLSCY suggested that the effects of poverty on child development were mostly through parenting, family function, and parental mental health (Beiser, Hou, Hyman and Tousignant 1998). In interpreting this seeming inconsistency, we have to keep in mind that our longitudinal analyses were about changes. In our conditional change panel models, we controlled for the previous level of the developmental outcome, thus previously-existing connections among developmental outcome, poverty, and parental characteristics were taken into account.

5.2 Policy implications

For most low-income families, the primary way to improve their economic situation is for parents to move into gainful and stable employment from welfare dependence, unemployment, or low-paying jobs. This up-moving process may take many years, and the income increments may be small and gradual for low-income families that are typically headed by parents without adequate educational level, job skills and work experiences. To promote this process, government programs for job training and placement should incorporate support for long-term education and skills upgrading. Currently, many training programs for welfare recipients and the unemployed are oriented toward the shortest possible route to employment. Many provincial and territorial welfare-to-work program reforms in the 1990s tended to move welfare recipients off assistance and into low-wage and unstable employment (Canadian Council on Social Development 1999). However, when reduced benefits are replaced with low wages and payroll taxes, families may get less take-home pay, and consequently, loss of the incentives to work (AIMS 2000).

Sustained and substantial improvement in family income is important to the benefits of children in low-income families. Our analyses indicated that transition out of poverty doesn't immediately improve children's developmental outcomes. A significant beneficial effect of moving out of poverty is conditioned on a substantial improvement in living condition. This finding supports the argument that reducing child poverty simply through increasing total cash

payments to poor welfare families is a shortsighted approach (AIMS 2000). Programs designed to reduce child poverty should not be expected to result in clear and quick effects on child developmental outcomes.

In many ways, children in poor families certainly will benefit from improvement in family economic situation. However, increases in income are not the only, and not even the primary, factor influencing children's developmental behaviours. Moreover, as our study results suggest, small income increases in the transition from welfare dependence to low-paying labour market may have detrimental consequences, probably due to elevated stress of the parents and reduced time that parents can interact with the child (Zaslow et al. 1998). Therefore, measures to help poor families reduce welfare dependence and move into employment must be supplemented by comprehensive child-focussed supports. Most recent provincial and territorial welfare-to-work programs have not adequately addressed the needs of families with young children. Furthermore, these programs are generally evaluated on the basis of cost saving, but not on the outcomes of recipients and their family members, especially their children (Canadian Council on Social Development 1999).

Research in the United States has indicated the importance of non-economic strategies in achieving the adult-focussed goals of welfare reform (Cauthen and Knitzer, 1999; Gomby and Larner 1995). In addition to programs promoting employment and increased family income, comprehensive policies must be in place to provide high-quality child care, early childhood development programs, family support activities, and to address other specialized child and family needs.

Government policies should incorporate the special needs of different segments of the population. Our results found that immigrant families were more likely to experience poverty but poor immigrant families were less likely to access, and derive benefits from the social welfare system than non-immigrant families. Probably because poor immigrant children suffered a higher extent of material deprivation, they responded to increases in family income more directly and positively than poor non-immigrant children in terms of the improvement in developmental behaviours. This finding highlights the urgent needs to reduce the depth of poverty among new immigrant families with young children. Although many new immigrant

parents may not meet current regulations to receive social welfare, their children should not suffer as a consequence. Immigrant children are the fastest growing component of Canada's child population. Their successful adjustment and development will have profound impacts on Canadian society.

Our study results also indicated that between 1994/95 and 1996/97, immigrant families did not enjoy the same degree of economic improvement, and faced a more volatile job market, even though they were more likely to participate in the labour force than non-immigrant families. This finding may be not applicable to all immigrant families since the survey only covered those with young children, and thus were likely to be new immigrant families. Therefore, the finding may reflect the initial resettlement difficulties that often confront new immigrants, and again calls for more comprehensive resettlement policies to help new immigrants fully realize their potentials.

Poor immigrant families may face different obstacles in improving their economic situation than poor non-immigrant families. For many poor non-immigrants families, the challenge is more likely to be the transition from welfare dependence or unemployment to employment. For many poor immigrant families, by comparison, the challenges are more likely to be language barriers, Canadian working experience, underemployment, and care for children when parents are working. Our finding that immigrant children's developmental behaviours tended to improve when they parents were unemployed, and deteriorate when their parents were employed suggests that immigrant children would greatly benefit from better child care supports.

5.3 Further studies

More detailed studies are needed in order to fully understand the impact of poverty and changes in poverty status, as well as their policy implications. For example, our current analyses were limited by a rather short period of follow-up. To understand the effects of prolonged exposure to poverty, or frequently moving into or out of poverty, we need to analyse future cycles of NLSCY data. Effects of exposure to poverty in early childhood may not unfold until a later developmental stage.

Another limitation of our comparison between immigrant and non-immigrant children was the restricted size of the NLSCY immigrant child sample. First, the small longitudinal component of

immigrant child sample prevented a separate analysis of foreign born children and Canadian-born children of immigrant parents. Second, the small sample size precluded finer-grained analyses to investigate whether the mental health advantages applied to immigrant children from different immigrant classes (such as refugees vs independent immigrants) and from various cultural or ethnic backgrounds. Sample constraints also obviated the investigation of protective factors which might further have explained the apparent resilience of immigrant children.

The current study found weak associations between changes in family poverty status and changes in parental characteristics such as parenting styles, parental depression, and family functions. This finding seems at odds with the common proposition that parental characteristics mediate the impact of poverty on child development. Further analyses need to examine whether the association is conditioned by the amount of income changes.

Finally, further studies need to examine social contextual determinants of children's responses to poverty. Some U.S. studies have examined the modifying effects of neighbourhood characteristics, such as rate of family poverty and the proportion of same-race residents, and urbanicity (Wilson 1991). For instance, poor Hispanic and American Indian children living in impoverished communities are disadvantaged relative to their peers living in affluent neighbourhoods (McLoed and Edwards 1995). One US study revealed that poor minority children experienced a higher risk of mental disorders in urban than in rural areas, while white children demonstrated the opposite pattern (Amato and Zuo 1992).

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